



**THE PRIMARY
TEACHER**

Vol. XI No. 1 January 1986

The Primary Teacher is a quarterly brought out by the National Council of Educational Research and Training (NCERT), New Delhi.

The Journal intends to give to the practising teachers and concerned administrators, authentic information about the educational policies being decided on and pursued at the Central level. It aims at giving meaningful and relevant material for direct use in the classroom. It would carry announcements of programmes, courses of study, etc., offered at various centres in India from time to time. It also provides a forum for the discussion of contemporary issues in the field of education.

The major features of **The Primary Teacher** are :

1. Educational policies concerning primary education
2. Questions and answers
3. States round-up
4. Illustrated material for classroom use.

Subscription : A copy of the Journal costs Rs. 1.50. Annual subscription is Rs. 6.00.

Contribution : Articles and papers written by the school teachers either in English or in Hindi are welcome. Each published article would be paid for. Two typed copies of the article should be sent in for consideration. Please send your subscriptions to Chief Business Manager, Publication Department, NCERT, NIE Campus, Sri Aurobindo Marg, New Delhi 110016.

The paper used for the text of this journal is a gift from the Unicef

General Editor : R.P. SINGH
Academic Editor : D.N. KHOSLA

Assistant Editor : M.G. BHAGAT
Assistant Production Officer : KALYAN BANERJEE
Production Assistant : ARVINDER SINGH CHHATWAL

THE PRIMARY TEACHER

JANUARY 1986

VOLUME ELEVEN

NUMBER ONE

CONTENTS

EDITORIAL

- 1 Teaching Well-How They Do it in Japan N. NARASIMHAN
- 4 National Awardee Teachers Travel Abroad ANIL
- 7 Systems Approach in Elementary Education R. N. AGARWAL
- 11 Self-Paced Learning for Primary School LALIT KISHORE
- 13 Language Development of Children JAGANNATH MOHANTY
- 17 The Gifted and their Education J. P. GUPTA
- 22 Satellite Technology for Primary Education JAGDISH SINGH
A. K. SINGH
- 25 Curriculum Load and Stress at Primary Level—A Study PROF. M. A. TAMBOLI
- 29 How to Come Over Reading Disability CHINNA OOMMEN
- NEWS AND VIEWS
- 34 Challenge of Education
A Policy Perspective

EDITORIAL

Dynamic Education

It is customary for education to follow socio-economic norms of a society. Static Societies tend to have a static socio-economic order and therefore it is logical for them to have a static educational system. Whenever a society comes to have a dynamic political leadership changes take place in the socio-economic set up followed closely by education. It is seldom that education by itself takes the lead and in recent times political changes have made it almost obligatory for education to change. One is therefore not surprised that the present political leadership has called for educational changes to take place. The leadership has merely given the direction and the people are being asked to accept the challenge themselves and respond accordingly. By itself it means that the political leadership is interested in mass co-operatives both in designing education and implementing desirable changes. Something new is therefore happening with no precedents whatever. People are more surprised than startled and the surprise has a good deal of pleasant overtones.

We are being reminded that as a country we have to accept the fact of living in a competitive world. While the nations like individuals are vying with each other for a better tomorrow, Indians must also stand up to have a slice of "better goods and services". With a vast majority of unskilled and uneducated populace we cannot hope to match our wits with the best in the world. The salvation lies in our evolving a system of education which could help us meet the challenge of future. Anticipating future and evolving strategies for survival are the only two ways of standing up with any degree of firmness and faith. It is not sufficient that we don't like our system of education or find faults with it. We must try to look ahead and create conditions so that only the best is made available to our posterity. Dynamism does not mean visualising movement but being with it when it is possible because the drifters can hardly survive in changing social orders. Let us hope that the New Year brings us that much of hope and resolution because how else would we ever rise above the immediate needs to catch a glimpse of what is yet to come.

General Editor

Teaching Well - How They Do it in Japan

N. NARASIMHAN

Recently Prof C N R Rao, Director of the Indian Institute of Science, Bangalore, in his convocation address at the Bharatidasan University deployed the "Culture of Poverty" being practised in our country in the field of education. His remarks are a sad reflection on the state of affairs in this field, not only in this country but in most developing countries.

Now that the Union Government has proposed to undertake a major overhaul of the educational system and has promised a new educational policy in a couple of months' time, it may be worth-while knowing a few aspects of the educational scene in Japan. The basis of the article is a report entitled "Japanese education, how do they do it?" by Merry I White appeared in "The Public Interest", No. 76, summer 1984 (New York).

The Japanese realise the importance of not just a high level of literacy but also a high level of education in the entire population. It is claimed that the Japanese high school graduate is as well educated as an American college graduate, and indeed it is impressive that any worker on the factory floor can be expected to understand statistical material, work from complex graphs and charts, and perform sophisticated

mathematical operations. This consensus that education is important however, simple it may sound, is the single most important contributor to the success of Japanese schools. Across the population, among parents at all institutional and bureaucratic levels, and the highest on the list of national priorities, is the stress on excellence in education.

There are clear advantages in being a Japanese child : a homogeneous population focussed on perpetuating its cultural identity : an occupational system where selection and promotion are based on educational credentials; a universal core curriculum; highly trained and rewarded teachers; and families, especially mothers, devoted to enhancing the life chances of children and working cooperatively with the educational system. Finally, there are high standards for performance in every

sector, and a carefully graded series of performance expectations in the school curriculum.

As a measure of cognitive achievement it is found from tests by the International Association for the Evaluation of Educational Achievement (IEA) that Japanese children score higher than any other children in the world (especially in mathematics and science), and some researchers have even claimed that Japanese children on average score 11 points more than American children in IQ tests.

The following salient features of the schools are noteworthy :

1 Japanese children attend school 240 days a year (compared to 180 in the U.S.). Many children spend Sundays in study or tutoring, and vacation classes are also available. Children do not see this as oppressive, and younger children often ask their parents to send them to *JUKU* - which are private after - school classes coaching for high school or college entrance examinations as a way of being with their friends after schools. Homework begins in first grade, and children in Japan spend more time in home study than children in any other country except Taiwan.

2. Elementary and Secondary Schools provide a core curriculum a required and comprehensive course of study progressing along a logical path, with attention given to children's development level

3 Computers and other technology do not play a large role in schools. The calculator is used, but has not replaced mental calculations. The abacus is still widely used. There is no national programme to develop high technology skills in children. Americans spend much more money on science and technology in the schools; the

Japanese spend more on teacher training and salaries

Tradition, ideology and international competition are not the only motive forces in Japanese education other factors are equally significant. First, Japan has a relatively homogeneous population. Income is almost evenly distributed, and 96 per cent consider themselves middle class.

Secondly, educational funding and planning are centralised. In terms of educational spending as a percentage of total GNP, Japan devotes as high as 8.6 per cent, as compared to 6.8 per cent in U.S. and about one to two per cent in our country. The most significant outcome of centralisation in Japan is that national planners and policy makers can mobilise a highly qualified teaching force and offer incentives that make even the most remote areas attractive to good teachers

Thirdly, teachers enjoy respect and high status, job security and good pay. Elementary and lower secondary schools earn \$ 18,200 per year on the average, higher secondary school teachers \$ 19,000. Compared to other Japanese public sector workers, who earn an average of \$ 16,800, this is a high salary, and it is only less than that of managers in large companies or of bureaucrats in prestigious ministries. In comparison, even American teachers salaries average \$ 17,600, which is lower in absolute value. Japanese teachers' pay increments as in other professions are tied to a seniority ladder and older "master teachers" are given extra pay as teacher supervisors in each subject.

Japanese teachers are highly qualified, all have atleast a bachelor's degree in their speciality. They see their work as permanent. They work hard at improving their skills

and knowledge of their subject, and attend refresher courses and upgrading programmes provided by the Ministry of Education. Moreover, they have a high degree of professional involvement as teachers: 74 per cent are said to belong to some professional teachers' associations in which teaching methods and curriculum are actively discussed. While there are tendencies, encouraged by the Teachers' Union, to downplay the traditional image of the "devoted, selfless teacher" (since this is seen as exploitative), and to redefine the teacher as a wage labourer with regular hours, rather than as a member of a "sacred" profession, teachers still regularly work overtime and see their job's sphere extending beyond classroom instruction. They are "on duty" after school hours and during vacations, and supervise vacation play and study. They visit their students' families at home, and are available to parents with questions and anxieties about their children.

Fourthly, there is strong ideological and institutional support for education because the occupational system relies on schools to select the right person for the right organisation. It must be noted that this is not the same as the "right job" or "slot". A new company recruit, almost always a fresh graduate, is not expected to have a skill or special identity, but to be appropriate in general education background and character for a company. The company then trains recruits in the skills they will need, as well as in the company style.

Maternal involvement is extensive at the elementary school level. In addition to formal involvement in frequent ceremonies and school events and PTA meetings, the mother spends much time each day helping the child with homework. The average

Japanese mother feels her child has the potential for success : children are believed to be born with no distinguishing abilities or disabilities) and can be mobilised to achieve and perform at high level. A "good child" has the following frequently invoked characteristics He is mild or gentle, bright and alert, energetic and spirited, and compliant and cooperative.

In the classroom, assignments are made to groups, not to individuals (this is also true at the factories) although individual progress and achievement are closely monitored. Japanese Pedagogy (and maternal socialisation) are based on the belief that effort is the most important factor in achievement, and that the teacher's job is to get the child to commit himself positively and energetically to hard work. The regular classroom is a place where the individual does not stick out, but where individual needs are met and goals are set. Teachers focus on pulling up the slower learners, rather than tracking the class to suit different abilities. For the most part teachers and the school system refuse to engage in examination preparation hysteria.

The success of the Japanese model has led to its use in other rapidly developing countries, including South Korea, Taiwan and Singapore

The lessons to be drawn by our planners, Governments, educational authorities, teachers and parents are quite clear

It is not enough if the salaries and working conditions of teachers are improved. Highly motivated teachers must be recruited in future and adequate facilities provided to retrain existing teachers

Teachers should themselves be constantly aware of their very great responsibility and rededicate themselves to the cause

(Adapted by courtesy from the 'Education' column of "The Hindu" dated October 29, 1985);

National Awardee Teachers Travel Abroad

ANIL

Travelling is usually and traditionally considered to be an essential component of education. Indeed the value of travelling as a constituent of essential education of man has been reiterated time and again by educational thinkers and philosophers the world over from time to time.

Locke, for instance, would say, 'The best part, usually, in education is travel which is commonly thought to finish the work and complete the gentleman'. And Montaigne would put it this way : 'Human understanding is marvellously enlightened by daily conversation with men and by travelling abroad'. Not this alone. When Socrates was once asked of what country he was, his reply was 'Of the World'. Similarly, when Nanak was asked the same question by scholarly saints of the Middle East, his reply was 'Of the whole Universe'. Great men like these lay a great deal of emphasis on embracing the whole world for their country and on looking farther than their own feet in order to be a truly educated gentlemen. In short all great philosophies of education make travelling necessary for the whole education of man. Even in the modern context a number of exchange

scholarships, fellowships, etc have been instituted by various nations to help scholars improve their educational prospects and to serve the cause of human education better.

Almost a dozen teachers from amongst the National awardees had the fortune of visiting different foreign countries and enjoying the benefit of foreign scholarships and fellowships :

Badri Prasad Joshi, a veteran Indian scholar in science who visited Sri Lanka in 1949, USA and many other European countries in 1965-66 on a Fullbright Fellowship (awarded by United States Educational Foundation under the Teacher Exchange Programme) and USSR in 1972 as a UNESCO Fellow. He was also granted honorary citizenship of the city of Prenton, New Jersey, USA in 1966. At home, he had held a large number of high offices like Honorary Director of various

seminars and workshops sponsored by institutions like NCERT, UGC, UNESCO, UNICEF, CBSE etc., and Director of the Rajasthan Academy of Education, Science and Culture besides presidency/membership on various committees and councils at the State level, such as All Rajasthan Audio Visual Education Association/State Advisory Committee on Education/State Board of Secondary Education/Committee on Courses/State Textbook Board/State Health Services Committee/State Committee for AIR Youth Programme/State Puppetry Guild, Advisory Guild/Rajasthan Education Services Association etc.

D.M. Desai visited USA in 1952-53 on a Fullbright scholarship and again in 1963 under the same fellowship and carried out research on the teaching of social studies. He also received a grant from the British Council for studying the system of education in United Kingdom in 1953. He profitably utilized his expertise thus gained to improve the status of social studies education in the States of Gujarat and Maharashtra besides carrying out experiment on abolishing the traditional examinations.

Among others who received Fullbright Fellowship is *V.J. Patel*. *Dr D.D. Pandya* who visited USA as a teacher of English also visited United Kingdom under British Council Bursary for attending a Summer School at Leess, besides holding at home a number of offices like Chairman, Bombay North and Suburban, member All India Federation of Education Association/Gujarat State Advisory Board of Secondary Education/Gujarat State SSC Examination Board/erstwhile Bombay State STC Examination Committee/Gujarat State STC Examination Committee/State Advisory Panel on School Broadcasts etc.; *Kum. D.R. Ghadiali*

in 1970-72, *D.M. Mukherjee* in 1957 to study school as well as teacher training systems in the States besides visiting these schools again in 1975 on behalf of the West Bengal Board of Secondary Education to study the system of comprehensive schools and vocation education and for the third time in 1978 on behalf of the West Bengal Secondary Council.

Other teachers who have visited foreign countries are *S.S. Kaushik* who visited USSR to study the Soviet system of Education on behalf of the Union Ministry of Education, *Mohd. Bashir Uddin* who visited Pakistan as India's representative at the historical conference held at Peshawar in 1954, *G. Narayana Panick* who was one of the four Indian participants in the UNESCO-sponsored Fifth Institute for Key Teacher Educators at the University of Philippines, Asian Institute for Teacher Educators, Bangkok; *Kum. D.K. Kanage* who visited Britain in 1983 under the Government Studies Exchange Programme to study the British school system; *Smt. N. Kapur* who was the first teacher from India to visit Australia to teach in a Training Institution for Elementary School Teachers in that country; *A.N. Thaker*, a wellversed science teacher, designer and Yoga expert, who has won many laurels not only in the country but also abroad. He visited USA at the invitation of Kent State University to participate in the Annual Conference of Science Teachers' Association of America where he also taught yoga to students and teachers all over USA as also visited West Germany to conduct yoga groups at Hamburg. He also visited Japan in 1972 at the invitation of the Inventions Association of Japan. He won first prize for the school at an International Science Fair held in Japan. He

represented India as one of the six science experts at the Asian Science Experts and Specialists Meet held at Manila in 1964. At home, he twice won first prize at the All India Teaching Aids Competitions, also a prize at an All India Mechanical Engineers and Design Builders' Contest organised by the Lions Club Organisation. His entry received first prize in the Central Government aided Project 'Teaching Science through Games and Toys'. He has also the credit of organising the first-ever Science Fair in Gujarat in his school. He has been associated with Vikram Sarabhai Community Science Centre as its Faculty Member. He has also taught yoga at Police Training College, Janagadh and also conducted yoga courses for 70 long-term prisoners of the Central Jail resulting in a TV documentary prepared by the Films Division on the behavioural and other changes in the criminals. He also worked on various committees in different capacities such as Secretary as well as Council Member, All India Science Teachers' Association/ State Book Review Committee/Laboratory Standardisation Committee/Science Fairs Advisory Committee/Children's Drama Committee, All India School Broadcasts Committee/Sardar Patel Centenary Committee/Teachers' Day Celebrations Committee etc. besides conducting sports meets and AIR interviews with top scientists.

P.B. Chakrabarty from among this group

of teachers was elected Fellow of the Royal Geographical Society of England in 1958 and S.K. Bhalerao, a Fellow of the Royal Astronomical Society.

This brief analysis reveals that at least six National awardee teachers enjoyed the benefit of Fullbright Fellowships to visit USA to study different aspects of education while yet another visited the States at the instance and invitation of a university in that country. One of these scholars, however, visited the United States thrice—first as a Fullbright Fellow and for the second and third time on behalf of the State Board/Council. Only three National awardee teachers visited U.K.—two under the British Council Bursary Programme and one under Government Studies Exchange Programme. However, two of these are also Fullbright Scholars, that is, they have visited both the States as well as the UK. Only two teachers have visited USSR—one of these is also a Fullbright Scholar who has also visited Sri Lanka. Thus, among the Fullbright Fellows, one visited USA, USSR and Sri Lanka, two visited USA and UK and three visited only USA. Among others, one teacher visited Pakistan, another Australia and two others Philippines—one having been to Bangkok and the other to Manila. However, the one who visited Manila has also visited Japan, West Germany as also the USA.

7810, Roshan Ara Road, Delhi-110006.

Systems Approach in Elementary Education

R. N. AGARWAL

The budget of education is increasing even then we have not been able to provide education to all children of school-going age and deliver the desired goods.

Educational systems analysis is concerned with approaching educational problems in a holistic way. System analyst perceives subject as a total whole so that he may have insight into the problems of teaching—learning and management and developing alternative system. Systems approach develops competencies in prospective teachers to deal with the educational problems with full confidence and intelligence. It enables the teacher to understand, design and manage instructional systems to optimize output

In some areas, we are facing shortage of manpower while in others we find unemployment among the educated. Besides these global problems our curriculum, teaching methods, examination systems etc. are ineffective. Our resources are very limited and they are not free like air and water. At the same time there is a lot of wastage and stagnation. Hence, the need of effective and efficient organisation, planning, execu-

tion and evaluation. Systems approach will increase the efficiency of education that it utilizes every new idea and technique and at the same time attempts to put into practice the most efficient and economically intelligent methods. According to *Karshaw and McKaun* (1959), "Systems analysis is one of the techniques which aims to find the most efficient and economically intelligent methods. It is an economic analysis since the aim is to find the best use of one's resources "

Our resources are limited, costs are rising and our goal is to minimize the discrepancy between "what is the state of education today in terms of both quantity and quality" and "what is required" in a particular context. Systems approach involves problem solving from the systems point.

According to Dr. G. B. Shah, "Educational Technology is a systematic approach

concerned with development, implementation and evaluation of instructional systems to optimize learning on the part of the learners. The process of education can be represented by a system of interaction between the teacher and the pupil. The result of the operation of the system should be acquisition of knowledge by the pupil. Direct coupling and feedback should be established between the teacher and pupil. The direct coupling is represented by the channel through which the teacher transmits information to the learner. The feedback is the route from the pupil to the teacher. It is necessary for self control, to help the pupil understand how he succeeded in mastering the subject. It has already been established by experts that for the educational process to be effective, it should provide for every pupil according to his needs.

Initial Approach

In any systems analysis the initial approach to the problem requires to define the relevant components, boundaries and structure of the existing system. The components of the system under study were the elementary schools, their students and the curriculum of Mathematics in wider sense. After defining the system, the next step was to plan action for studying the problem. The problem of the present study was to develop learning packages for developing different concepts of Elementary School Mathematics (ESM). Systems approach urges the planner to produce and study several alternatives, all of them feasible to give desired output. In order to produce workable plan the first step was to minimise the cost, time and energy for developing different learning packages with-

out sacrificing their effectiveness. Following steps were taken for developing different concepts of ESM :

1 Formulation of Objectives

The objectives of teaching different concepts of the subject were very clearly specified in terms of behaviour changes Knowledge, understanding and skills, etc which children would demonstrate and the interest and attitude they would develop were clearly defined. What the pupils are expected to do after learning a particular concept was written in clear and simple language.

2. Development of Criterion Test

The purpose of the instruction is to mould the pupils' behaviour which is depicted by the terminal behaviour. A criterion test is developed to assess whether the behaviour has been modified as desired. This also provides feedback and helps in analysing the objectives and pre-requisite skills.

Criterion tests for evaluating the learning outcomes of different concepts of ESM were developed. The criterion tests were based on the objectives of teaching respective concepts. These criterion tests were administered twice to the students. First, they were administered prior to teaching to assess the initial background of the students, before they were actually subjected to different treatments. Second, they were administered as post-test to evaluate unlearning outcomes of the students.

3. The analysis of learning tasks

Entering behaviour tests were developed after determining the initial background of the learners before the learning process

Criterion tests were also prepared to assess the learning outcomes of the learner. This has helped in deciding what the learner has to learn. Learning tasks were carefully analysed and formulated. *Popham* and *Baker* (1970) say : "Among the most serious problems facing an instructor is the decision about what he should do to help his students to achieve his desired objectives. A teacher must have some way of identifying and ordering the activities that will optimize his chances of being successful." Task analysis includes (1) analysis of the terminal behaviours and also (b) analysis of all the activities that the pupils have to do during the instructional process or a programme. It should also clarify and describe the sequence of the activities or teaching points taking into account the concepts and skills involved in them. Task analysis describes the pupils' enroute behaviour. It defines the activity that the student must master as a preliminary or basic skill to enable him to perform the terminal behaviour.

4. Entering Behaviour Tests

The end product of the instruction mainly depends on the raw materials that is present at the beginning of the instructional process *Fry* (1963), asserting the importance of previous learning, says that "Previous knowledge influences learning, even though the previous knowledge is only vaguely related to the new knowledge being acquired." Entering behaviour is the base line data from which the terminal behaviour or the end product is shaped. It suggests where the pupil is at the beginning of the instructional process and terminal behaviour suggests where he will be at the end of the instructional process. The

information regarding the entering behaviour includes the previous experiences, aptitude, age, interests, ability, level of attainment in the subject etc. of the pupils for whom the instructions are to be planned.

5. Design of the System

After identification of the learning tasks the next step is to prepare a design of the system which can maximize student learning and achieve the objectives. Functional analysis is an important phase in the development of systems design. Following steps were taken for preparing the design of the system :

- The content of mathematics was organised.
- Learning experiences corresponding to the content were selected and organised.
- Learners were organised
- The system was operated and evaluation of the students was done as the learning enhanced.

6. Selection of Methods

Instructional strategies and methods of the following treatments were selected and specified which could maximize the attainment of students :

- Simulation and Gaming
- Pictorial Programmed Instruction
- Taped Programmed Instruction

7. Materials and Media

As per demands of the instructional strategies materials and media are selected. Following instructional material for creating teaching-learning situations was used :

- Kits
- Instructional technology for train-

mag of Mathematics teachers
(ITMT)

- Pictorial programmes
- Taped programmes
- Album of kits
- Workbooks.

8 Defining the role

Role of the following persons involved in the instructional system was defined to help the students to achieve the pre-determined objectives .

- The investigator
- The principals
- The subject teachers
- The students of the class
- The student leaders.

9. Synthesis and Implementation

Before installing the system, the designer introduces system training and testing. It helps to refine the operational relationships and the integration of the components. The designer ascertains that all the components possess the needed capabilities. If weakness are discovered he can introduce a training or adjustment process by which the required competence can be attained. Try-outs of the material was undertaken on a small sample of students and necessary modifications and adjustments were made to maximize the learning outcomes of the students.

10. Quality Control

Necessary adjustments are introduced if needed to correct the system so that its objectives are attained. To monitor the system requires its continuous evaluation and analysis. The objectives and criterion tests were checked to ascertain the efficiency of the material and method and to improve the attainment of students.

Performance of the students was evaluated continuously Following tests were administered :

- Entering behaviour test for measuring the input competence
- Criterion test as pre-post test to ascertain the initial background for evaluation of the efficiency of the methods.
- Assessing the progress of the learners and to provide them feedback.
- Criterion test as post-test to measure output performance.

11. Results and Modification

The system was modified on the basis of feedback from evaluation results so that its effectiveness in terms of students learning could be improved.

Meerut University; Meerut College,
Meerut:250001.

Self-Paced Learning for Primary School

LALIT KISHORE

ng procedure has a social dimension to it as it gives an autonomy to the
rn at a pace comfortable to him. A bright student has not to wait unnece-
ssary to catch up with him.

tors feel that the primary
nts should be allowed to learn
paces. In this regard, *Rubin*
ves that by altering the time
it is possible to better the per-
students. Also, *Eble* (1977)
a good self-paced learning
ertainly preferable to poor
bad conditions of handling
tudents. Self-paced learning
in really help students to con-
r learning and develop their
arn on their own.

f-paced learning system, the
subject matter is structured into
ng segments or lessons. The
i lesson is arranged in such a
ry child should be able to pro-
it step by step at his own pace.
in the self-paced learning

procedure the performance level is fixed
while the time to achieve the level is
different for different students. Moreover,
the student is allowed to evaluate his pro-
gress through the graded self-assessment
excercises. The student can seek for individ-
ual help and guidance from the teacher as
and when need arises. When the student
feels ready, he takes a test on his on-going
unit. The score of the test tells how far
the student has achieved prescribed perfor-
mance level and how much guidance he
needs to achieve the level. If the student
is able to achieve the prescribed perfor-
mance level, he advances to the next
lesson.

In this regard, *Lemaresquier* (1971) says
that equal opportunities for all does not
mean nominal equality; same treatment for
everyone, as many still believe today. It
means making certain that each individual
receives a suitable education at a pace and

through methods adapted to his particular person.

Mehriens and Lehmann (1978) observe that learning is a function of time spent on the subject material. It has been found that the most rapid learner in a class learns about six times as fast as the slowest learner. When such a variations in the pace of learning exists among children of the same age group, everyone should be permitted to learn at his own pace to give children a feeling of adequacy in learning.

Karnataka Experiment

In Indian context, the self-paced learning procedure is already being used in hundred odd primary schools of Karnataka state. A report by *Rao (1981)* about the self-paced learning system says that the experiment has produced miraculous results. Under this system, each year's syllabus is divided in 40 lessons. The children pace themselves through the lessons. A slow learner repeats a lesson till he shows a good level of performance.

Regarding the experiment of self-paced

learning in Karnataka, *Rao* further adds: "Some students progress more rapidly than others. The specially prepared lessons in every subject contain simple explanations and a set of objective questions beneath. The student would read the passage, understand it and answer the question. According to his ability, the student could progress unhampered. When he completes one lesson, he would receive the next without waiting for others to catch up."

Conclusion

The Karnataka experiment is quite successful at primary level as it has the built-in provision of individual attention and guidance to slow learners. If a child takes more time to consolidate his learning, has he learnt it less well? The answer to this question is an emphatic. There is a need to implement the self-paced learning system at the primary school level in a big way.

*Principal, Central School, Tengu Valley,
Arunachal Pradesh*

Language Development of Children

JAGANNATH MOHANTY

Mental or cognitive development of the child is of great significance and language development is an important part of the whole life process. Language influences the child's cognitive development to a great extent and is itself influenced by his environment. Language is an essential tool for personal and social adjustment. It is an important means of learning and communications.

Importance of language in a child's development can not be over-estimated. Most of his learning depends on language which is the basis of all social communication. The transmission of culture from one generation to another which is one of the important aims of education, depends largely on language.

The acquisition of words is essential for abstraction and concept formation and in fact, almost all higher learning and higher mental processes such as thinking, planning, reasoning, paying attention, remembering and judging. Failure to become skillful in communication (speaking, writing, reading etc.) greatly impairs a child's general, mental or cognitive development.

The process of language development is immensely influenced by environmental conditions and learning. The psychologists

and linguists feel that learning theory can not fully explain the complex and extremely rapid development of the child's vocabulary, grammatical and semantic knowledge.

Ability to vocalise speech sounds and write the symbols of alphabet depends on the neuro muscular maturation. The child must learn to use language for communicating with others, for understanding others and for thinking. A child begins to understand language and to make meaningful associations between words and what they stand for. It is found from a study that the average two-year old spoke 37 different words. But this is a minimal estimate of the child's vocabulary. The range of individual differences among the two-year olds is too wide, 6 to 120 words.

A child's effective vocabulary i.e., his ability to speak or understand words,

expands immensely starting with the second year. The following table shows the increase in average effective vocabulary between the ages of eight months and six years :

TABLE I.*

Growth of vocabulary between 8 months and six years of age.

Age in years and months	Average number of words
0 8	0
0-10	1
1-0	3
1-3	19
1-6	22
1-9	118
2-0	272
2-6	446
3-0	896
3-6	1222
4-0	1540
4-6	1870
5-0	2072
5-6	2289
6-0	2562

During the second year, a child develops the use and understanding of these words and his speech becomes more accurate, adult-like and hence more comprehensible. He also increases comprehension of directions and questions.

Pre-school Years

The structural pattern of speech changes rapidly and remarkably during the pre-school years. The interjections together constitute 60 per cent of a child's speech at 18 months. But the percentage of such words comes down as he grows older. Gradually pronouns, verbs, adjectives, con-

*From Smith, M.E. An Investigation of the Development of the Sentence and the Extent of vocabulary in young children (University, Iowa Study, Child Welfare, 1926 Vol 3, No. 5.)

junctions and prepositions increase in frequency. Between the ages of two and three, the child's speech consists primarily of nouns, verbs and adjectives, comparatively a few pronouns and virtually no connectives. But by the time a child is 3½ or 4 years old, the distribution of words under various parts of speech in the daily conversation approximates that in an adult's. His vocabulary greatly expands and he uses the same more efficiently. His speech becomes more comprehensible and frequent. His articulation and pronunciation improve very rapidly between the ages three and three-and-a-half. By the age of eight his pronunciations do not differ much from that of an adult.

The sentences used by the child gradually become longer, more complex and more elaborate. Average sentence of a 2-year old child consists of 1-2 words and of 3½ year old child has 3½ or 4½ words. But only six months later i.e. at about four years of age on the average, children use complete sentences, six to eight words in length. Although a child may not know or tell about the grammatical rules, but he can use plurals, past and future tenses, subordinate and coordinate clauses. Sometimes children's early mastery of the usages and structures becomes amazing.

Influence of Environment

Environment plays a significant role in the language development. Growth of vocabulary and speech may be accelerated or retarded according to the quality of environment. Social interactions have a great influence on the language development during early childhood. For example, orphans adopted into foster homes are more advanced in vocabulary, articulation, sen-

tence length, complexity and structure than those living in unstimulating orphanages. Moreover, these effects are found to be lasting. One longitudinal study showed that spending the first three years of life in an orphanage may result in a restriction of verbal ability that is not likely to be overcome even after a period of schooling, family life and community experience.

It is also found that twins usually progress more slowly than other children in all aspects of speech. This may be due to the twins' social situations as they play together and talk to each other without depending much on the adults' communication. However, they soon improve their language or speech after their admission into kindergarten or nursery system. It is evident from the research findings that the widening social contacts with other children have immediate effect on twins' motivation for and learning of language skills. Only children tend to be more advanced in verbal abilities than children from larger families. This may be due to the fact that only children generally have more contacts with adults and better interaction with the outer society. They have also more rewards and incentives for speech.

Social class differences have also a great impact on the language development. Studies have shown that children from middle class homes have better vocabularies, articulate more clearly, speak more correctly and use longer sentences than do children from lower class homes. One study has pointed that three-year-old children whose fathers are in the professions use more than twice as many words for sentence as the children of unskilled labourers. In comparison to lower class children, those of the middle and upper classes talk more with their parents,

are more interested and also rewarded for language accomplishments. The results of an interesting experiment by Prof. *Ovils Irwin* of the University of Iowa show that increasing the stimulation of the environment of a child from lower class would heighten his interest and abilities in language and speech.

Language and Behaviour

Research studies have reported that as a child's language skills improve, his behaviour becomes increasingly controlled and regulated by the words and instructions of others. Particularly, the Soviet psychologists like *A R Luria* and his colleagues have found language as "the essential means whereby the child finds his bearings in the external world". According to them although language functions primarily as a means of communication, gradually it becomes the most important mediator and regulator of behaviour.

Adult's verbal instructions do not have much impact on the motor behaviour of infants of a few months of age. But children of one or two years of age make orienting and investigatory responses to an adult's speech. Verbal instructions to a three or four-year-old can be effective in releasing action in the child. Since the language of the three or four year old child is more highly developed, he can carry out rather complicated instructions given by adults. He may begin to regulate his activities on the basis of self-instruction. As the regulatory function of speech becomes further developed, it shifts from overt to covert or permanently internal.

From the age of five-and-a half, almost all new learning involves language. According to Russian Research reports, behaviour that is learned with the use of language is

acquired quickly and is highly stable whereas behaviour learned without verbal participation are relatively unstable and are easily forgotten. *Paul Mussen* has observed, "children over five years of age function and control their behaviour primarily by

means of verbal stimulation; that is, by means of what American psychologists call mediated-generalization or verbal mediation."

Reader in Education, SCERT, Bhubaneswar

Educational Puzzle

*I am the unique Wealth of the World,
On Earth, I have no match
No thief can steal me
Nor can a mighty king snatch*

Contributed by V.N. Sharma, Advocate
Sironj (Vidisha) M.P.

(Answer . Learning)

The Gifted and their Education

J. P GUPTA

Ever since the days of great Greek culture, the philosophers and educators have been expressing their concern to the selection and education of gifted ones. They have been devoting themselves to work out systematic methods in these and related area. No country and no educational system can afford, in the present age of democracy, to side track the issue of the education of exceptional children.

With the advent of democratic practices in the political thought, the term equality has been interpreted to mean equality of opportunity. This implies a belief in the right of all children to develop to their maximum. Thus, inherent in the philosophy of democracy is the right of each child to receive help in learning to the limits of his capacity, whether that capacity be small or great. As we look back into the history we become convinced that the entire concept of educating each child to the height of his ability is relatively new. We have come a long way from the Spartan's practice of killing the deviant or malformed infant, though the progress has been very slow, yet gradual. It is certain that the tremendous changes have taken place in attitude towards exceptional persons and their education.

Who are Exceptional Children ?

The phrase 'exceptional children' refers to those children who deviate from normal ones in one or more mental, physical and/or social characteristics to the extent that a modification in school programmes and practices may remain the only course open for their maximum development

The intellectually gifted children represent the upper group on the intelligence scale. They are capable of dealing with facts, ideas and relations because of their superior ability. These are the children who possess superior intellectual potential and functional ability to achieve academically. The intellectually gifted children may have special talent in some area. They may be talented socially, mechanically, artistically, musically, physically, linguistically or

academically. Usually, the talent and giftedness follow each other. Still there are cases of special talents of a non-intellectual nature or abilities, narrow in range in which the individual is not able to handle ideas and relationships outside a very limited field.

Prevalence of Giftedness

The prevalence of gifted children is a matter of the criteria used. It depends on the cut off point, varying from five per thousand (if the I.Q. of 140+ is taken as criterion) to 16 to 20 per cent (if the I.Q. of 115 is the criterion). Prevalence also depends on the type of the community studied. Higher socio-economic status with better homes, better educational background and better opportunities is more conducive for the prevalence of giftedness.

Identifying the Gifted

Within every class, in every school, children differ from one another in various degrees. Majority of the children, of course, can be placed under the average category but there are children who can be placed on one or the other extreme. Inspite of the means for the identifications not a small number of gifted children go unnoticed and pass through school unidentified and uncultivated.

Identification of gifted children is accomplished by a combination of procedures. Taken in isolation, individual intelligence tests may by far be taken as the best but they are expensive in terms of time and service. Group intelligence tests are good for screening but they may fail to identify those with reading difficulties and emotional problems. Achievement tests

may also be helpful, but it should not be missed that they may fail to identify, under achieving gifted children. Teachers observation is also a practice. But underachievers with emotional problems and apathetic attitude towards school programme, may escape teacher's observation. However a global approach may be more dependable and may better ensure that there is no ignoring of the gifted ones.

Characteristics

Physical : Gifted children are superior specimens physically and tend to display a superior energy in their activities. Physically a gifted child ranks above the average child in the community. At birth they are heavier by a pound than average, are superior in height, learn to walk earlier and incidence of sensory defects is lower in their case. This physical superiority is maintained throughout the years.

Intellectual and Educational : The intellectual superiority of these children is beyond doubt. Their I.Q. is higher (I.Q. is 10+) than that of other children. They are endowed with enhanced mental power to carry on thinking, reasoning, judgement, imagination and other intellectual activities on a very high level. They show more than an average interest in the more theoretical subjects. The school work of the gifted is rated as superior to that of their classmates. They tend to be advanced in all areas of school work, may be History, Science, Literature, Arithmetic or any other branch of knowledge. Gifted ones are regular in school attendance. The weaknesses appear most often in subjects requiring manual co-ordination or dexterity.

Personal and Social : In respect of personal and social standards and ideals

the gifted children exhibit more favourable social preferences and social attitudes, less cheating and considerably greater trustworthiness. Freedom from fears, worries and psychopathic trends further establish their superiority to others. Also they excel in activity, vivacity, independence and self assurance and are less conforming in behaviour. In addition, they have more experiences to relate their sense of humour, can be more often noted along with their willingness to face difficulties. In respect of co-curricular pursuits and interests as a group they exhibit their liking for music, painting language etc. outside the regular school curriculum. They prefer thinking games and those that are mildly social and quiet.

Emotional: Emotionally the children of high I.Q. are as a group more stable and their superior emotional adjustment seen in childhood is maintained in adulthood. The delinquency rate is far below in their case. Nervousness, over anxiousness, sensitivity and other typical personality disorders and infrequent social problems such as lying and stealing are less frequent among gifted. They are socially accepted by their classmates and tend to win confidence. However complaint is made in several cases of too much time spent in reading, of being self centred in a few cases of mixing poorly, being teased easily, solitary or resistant. The gifted becomes ultra critical, perhaps as a result of semi-awareness of mental superiority. When a gifted child is also a sensitive or nervous child, his adjustment difficulties tend to increase. High emotional stability is rather the rule than exception in the case of gifted children.

Racial and Ethnic differences: Some racial or ethnic groups do tend to produce disproportionate numbers of gifted children,

but quite probably because of cultural and value system differences and the means of identification used rather than because of any inherent differences in intelligence level.

Sex Ratio: An excess of boys over girls has been found in the higher I.Q. brackets in the majority of groups of gifted children. The existence of a sex difference or its amount can only be indicated certainly when the secondary factors (such as social motivation, amount of practice and experience, etc) are eliminated.

Education of Gifted Children

The fact that the number of the gifted children is small and the group is heterogeneous, makes the task of adapting education more difficult especially in a system of mass education. Acceleration, enrichment and special schools and classes or a combination of these have been in practice

Acceleration: Acceleration refers to early school admissions on the basis of mental age rather than chronological age. It may take the form of skipping grades which stand for complete elimination of one grade or one semester. Since skipping a grade sometimes leaves a gap in a child's experiences, some schools provide for a child to cover the same material but in a shorter period or carrying extra courses in the same period. This is telescoping grade. The major objection to acceleration of students by any of these methods affects their social and emotional adjustment. However the research in the field is not clear, so decisions on acceleration have to be made for each individual separately.

Enrichment: Many schools emphasize enrichment and individualized instruction within their regular groups. The term

enrichment has been applied to an adaptation of the regular programme to provide educational experiences over and above those in the regular programme. The enrichment has been attempted through various procedures, including challenging the youth with additional readings and extra assignments; additional learning (as foreign language); employing a special teacher to identify the gifted and to help the regular teachers and by encouraging teachers to help in the development of habits of independent work, initiative and creativity. The practice of the enrichment in the school gives the child better opportunities for developing leadership, allows him to remain with children of his own age and minimizes the financial requirements.

Special Schools and classes: A third approach in the education of the gifted emphasized the provision of special schools and classes for them. Establishment of special schools or self contained special classes has generated a heat of controversies and remains unacceptable in general. But groupings are generally accepted. Modified special classes is one form of grouping in which the gifted child remains in the regular class with the children of his own age group but has special instruction for the part of the day with other gifted children. In respect of school activities, he participates with other children.

The above discussion leads to the conclusion that the procedure of instruction for a gifted child should take into account his deviation from the class in which he is placed and the discrepancies in growth pattern within himself.

General Principles

Each gifted child is unique upto himself

as such the efforts to educate these children under a single plan may prove inadequate. While organising a workable programme for their education, the following considerations should be taken as guiding principles.

Acceleration can be considered for the proper educational achievement of the child if his growth in physical, social, mental and educational areas is superior. But when the child excels only in the educational area and equals in other areas to the chronological age, placing him in a special class may be more worthwhile.

Enrichment, tutoring or special sections for the gifted in the regular classroom may prove beneficial when school system is too small and provision for special class may not be feasible. Individualized method of instruction may be necessary when inner discrepancies in growth are quite marked and child fails to adjust to other situations. Securing the services of a special teacher for the gifted children may be more advisable if enrichment is to be incorporated as an integral part of the education for the gifted.

Suggestions

Gifted child has been found to learn faster than the average child. Because he requires less repetition to learn the same material, he should be allowed to go ahead with supplementary reading. They do need the drill on some things, but usually less of it. If the drills can be concealed in assignments, they may have meaningful appeal.

The gifted children can grasp the relationships and ideas more readily because their reasoning ability is superior to that of other children. They like to reason problems through and understand them, hence they often demand an explanation which may involve more details. The teacher must

willingly help the child in analyzing steps and deriving the conclusion. Sometimes such a child comes up with conclusions and generalizations not expected of a child of his own age. The trait should never be ignored, rather fostered and developed. Because of their superior ability to perceive relationships, they may complete the assignments faster than other children. Teachers should be careful that they do not just sit or get into the mischief and distract others.

An insatiable curiosity and creative ability are peculiar to a gifted child. He has a fascination for imaginative activities and wants to know the 'why and where for' of many things. The creative spurts may appear and the teacher should watch for flashes of creativity.

Gifted child is found to be more critical and even dissatisfied with his own achievements. Auto-criticism is to be respected provided he does not become critical of everything. Teachers should watch for marked autocriticism and should help the child to experience the satisfaction out of what he can do at that particular stage of development

Teachers for the Gifted

A teacher for the gifted should be one who is specifically equipped to carry on the task of educating the gifted in accordance with the characteristics and their needs. He should have specialized training to be able to foster in gifted children a sense of social responsibility. He should try to understand

their social and emotional problems, be ready to develop a flexible individualized enriching curriculum; be resourceful to seek the efficient participation in group discussion and social relations, and should attempt to create a class room environment in general, conducive to good mental health

Conclusion

Because of the peculiar characteristics, problems and needs adapting of a programme for special education for the gifted becomes unavoidable for the development of potentialities latent in them. Special education is to be taken to mean as additional educational service over and above the regular school programme. The amount and kind of special education depends upon many factors, among them the degree of discrepancy, between his development and the development of the ordinary child and the discrepancies in development within the child himself are most significant.

No system of education which ignores and fails to do justice to the children deviating from the normals can be respected in an age where the practice of democratic philosophy is the order of the day. Specially gifted children represent the cream. It is on the realization of this fact and then making provision for their proper education that the advancement and all round progress can be ensured for a country in particular and humanity in general.

Department of Education, Lucknow

Satellite Technology for Primary Education

JAGDISH SINGH

A.K. SINGH

However, since the use of TV for educational purposes is going to stay and expand, utilisation of TV in the classroom may be made an essential component of the teacher's training programmes in the country. The sooner it is done, the better it would be.

Although radio has been in use for improving formal education at the school level in the country for more than 50 years from now, television (TV) has been yoked in the service only lately. The use of TV at the primary level is still more recent.

India's first attempt to use TV on a mass scale for qualitative improvement of primary education came with the availability of the American Satellite, ATS-6, during the Satellite Instructional Television Experiment (SITE) in 1975-76. The SITE was conducted in 2330 villages scattered in 20 districts and in six States for a period of one year beginning August 1975.

The second big attempt in this direction has become possible only with the country acquiring its own satellite, the Indian National Satellite (INSAT-1) in April, 1982*. After the initial set back, the educa-

tional television service got going with the operationalisation of INSAT-1B in mid October, 1983. By the end of this year, the service would be available in all the selected six INSAT States namely Gujarat, Maharashtra, Uttar Pradesh, Bihar Orissa and Andhra Pradesh.

Under the scheme, there is five-day a week morning transmission comprising of two separate programmes each of 20 minutes for the 5-8 and 9-11 year old children for each INSAT state. Teacher's programme is telecast on Saturdays.

More than 4500 primary schools in as many villages in the six states will be provided with TV sets in the Sixth Plan Period. By 1986-87, some 14,600 primary schools in these States are proposed to be provided with the TV sets.

In order that educational TV is relevant to the needs of the educational situation, the educational authorities have assumed the responsibility of planning and production of the software. To this end, a TV Production Centre has been set up centrally

*Notwithstanding the continuation of the telecasts for the primary schools in the post-SITE areas of Jaipur, Raipur and Muzzafarpur and extension of educational service to cover primary education on part of the Doordarshan Kendras of Delhi, Madras, Bombay and Srinagar

in the Central Institute of Educational Technology (CIET) in the NCERT, New Delhi. Similar production centres are in the process of being set up in the six INSAT States. An ambitious training programme has been mounted to create competencies around the production centres in various aspects of educational television.

The State is investing a big sum of money and efforts in harnessing the new technology for education of the young children. Will the investment equate the effects? This is a big question. The answer could be both 'Yes' and 'No' depending largely on how teachers use the new technology in the class room situations.

TV is, no doubt, a powerful medium of education. It has the potential to create a significant impact on the lives of the children. But the medium has its own limitations too.

Firstly, TV has a language of its own. It requires a good degree of visual literacy to understand the medium; the rural primary school children being exposed to the medium for the first time may not have acquired it. The children may also have a problem in co-ordinating the commentary and the visuals during the showing of programmes.

Secondly, it is a one-way communication. The viewers cannot ask questions and get clarifications resulting in less than fuller comprehension of the programme.

Thirdly, it is a mass medium; TV programmes are produced keeping a large section of the audience in view. The programmes may not exactly relate to the experience of the children living in a particular environment. Children learn better when a given information is related to

their direct experience and immediate environment.

The available evidence suggests that learning from TV on the part of the young children may be seriously impaired because of the limitations of the medium. It is mainly here that the role of the teacher comes in. Studies indicate that while adults and older children may learn from TV by themselves, young children find it generally difficult to do so. They learn more from TV viewing if an adult motivates them beforehand and takes an active role in drawing attention to the important content, terms and concepts while they watch. Other studies have found that young children learn more when their teachers provide opportunities for post-viewing discussion of the content, supplement educational statements and encourage activities which build upon TV content. Still others maintain that mere presence of a teacher in the TV room makes a difference. If the attention of the class teacher lapses or if he leaves the room during the transmission, the reception of the programme will deteriorate, especially with young children, there is a tendency to accept a programme at the valuation of the teacher present.

Yet another equally important role of the teacher is to create a congenial physical environment for TV viewing. However inspired a programme may be, it will be of little use unless it can be seen and heard properly. And this, in turn, is governed by a number of factors—the viewing room, the placement of TV receiver, the seating arrangement and so on.

A viewing room needs enough space to accommodate the audience, with a little to spare. It should be away from extraneous sounds as far as possible. Ventilation is

particularly important, fresh air circulation is essential for concentration.

There is, in most cases a temptation to bring several classes or several sections of a class together to view TV by cramming them into a room meant for half the number. For a variety of reasons, this should be discouraged. Proper introductory or follow-up work on the part of the teacher is difficult. The physical conditions for viewing are also poor. It is far better for fewer students to view a programme in favourable surroundings than for double the number to half see it.

As for seating arrangement, certain principles have been established, which can be taken as guidelines.

The children should be looking at the TV screen from as normal an eye line as possible. However, the set may be placed at a lightly higher level than the eye line to enable the children in the rear to view the programmes unobstructively. If the children are seated on the floor, the set may be placed at a height of $2\frac{1}{2}$ to 3 feet.

Further, the set should be placed in such a position where light from a door, window or an electric bulb does not directly fall on it. This is not to suggest that TV room should be darkened. In fact, some light in the TV room is helpful in obtaining a good contrast of the TV picture. And keeping the doors and windows closed may cause suffocation and discomfiture among children, particularly during the summer.

The children should be sitting before the TV set in a different manner than in the normal class, because while the children in the middle may be able to watch the programmes clearly, those sitting at the extreme

sides may find it difficult to do so even if they crane their necks. Ideally, the children should sit before the TV set within an angle of 60 degree * But if the audience is large, it could be extended to 90 degrees.

Minimum viewing distance is another important factor on which one can be fairly categorical. While the minimum distance will grow greater as the screen size increases, in most cases it will average out at 4 to 5 feet. Viewing at a distance closer than this may adversely affect the eyes of the children, and also impair the clarity of the picture. The maximum viewing distance will depend upon the size of the TV screen. For a screen of 20 inches (51 cm), ideally, the last row should not sit beyond 20 ft.

The successful utilisation of the ETV programmes among the children depends upon a number of factors. The attitude and the willingness of the teacher to make meaningful use of the programmes is of paramount importance. Equally important is to ensure a proper seating arrangement and congenial physical environment free from noise or distraction. This calls for proper orientation of the teachers in effective utilisation of the medium by holding special camps. This orientation can also be imparted using the medium itself by telecast of programmes especially designed for the purpose, supported by print material.

*This means 30 degree angle on either side between a line drawn perpendicular to the centre of the TV screen and a line drawn from the centre of the screen to the viewers.

Dr Jagdish Singh and A.K. Singh are Reader and Project Officer respectively in the Central Institute of Educational Technology (NCERT), New Delhi.

Curriculum Load and Stress at Primary Level

A Study

Prof. M.A. TAMBOLI

The non-academic subjects in the curriculum are as important as the academic subjects if not more. They are not only essential for formation of character and development of personality, but if properly implemented, they are also helpful in lessening the load and stress of the curriculum.

Since the attainment of independence, educationists in this country have been attempting the difficult task of modernising, upgrading and widening the school curriculum with a view to bringing it upto the level of that in the western developed countries. No doubt, the school curriculum has to be responsive to the changing needs and demands of the emerging society of our developing nation, but at the same time due consideration needs to be given to the circumstances in which the curriculum is to be implemented: such as socio economic background of the pupils, the efficiency of teachers and the classroom conditions. It is true, that attempts have been made and are still being made to improve such curriculum determinants but unfortunately, they have not been very successful

In these circumstances one need not be surprised if there is a feeling among the public that the standard of school curriculum has gone up, but the general level of pupils attainment has gone down. People often complain that our school curriculum is too heavy—too heavy for the pupils, too heavy for the teachers and too heavy for the parents. Here it may be remembered that the parents are now-a-days required to help their school-going children in their homework. Is this feeling justified? Does our school curriculum really lay too heavy load on pupils, teachers and parents? If so, is the load felt equally in the rural and urban schools?

The then Governor of Maharashtra, Chief of Air Staff (Retired) Shri I.H. Latif who has a keen interest in education is

also of the opinion that the present school curriculum creates stress on the minds of the pupils. In order to answer the questions mentioned above and spurred by the address of the Governor of Maharashtra which he gave on 11.8.1983 the research department of the Maharashtra State Bureau of Textbooks undertook a research project to study the load and stress of the curriculum at the Primary School stages

The Maharashtra State Bureau of Textbook Production and Curriculum Research allots about 40 research projects to the teachers every year under its Financial Assistance Scheme. The Bureau allotted 8 research projects to find out the load and stress of the curriculum in the year 1983-84. In addition to it the author who is a Research Officer of the Bureau undertook a quick survey of 31 primary schools to get the first-hand information with a view to study the school timetable, periods allotted to various subjects and the extra-curricular and co-curricular activities carried out by schools.

The researchers selected, represented the various regions of Maharashtra such as Vidarbha, Marathwada and Western Maharashtra. The researchers were highly qualified with sufficient experience in carrying out research work.

By considering together the reports of the 8 studies one can pickup some important findings and conclusions that deserve to be highlighted :

1. In general the heads of schools, teachers, parents and pupils are of the opinion that the load of the curriculum for Standards I to IV and for Standards V to VII lays great stress on the minds of pupils.
2. The academic part of the curriculum

takes up too much time and energy of pupils and teachers as a result of which activities that go to form character and develop personality are grossly neglected

3. The load and stress of the curriculum on pupils varies inversely with the socio-economic status of their parents. Higher the socio-economic status, lower the load and stress

The reasons behind the load and stress of the curriculum are of two types—*intrinsic*, i.e. those that are inherent in curriculum itself and *extrinsic* i.e. those that are due to faulty implementation of the curriculum or the unfavourable conditions in which the curriculum has to be implemented

Among the intrinsic reasons the following are important

1. The curriculum is too heavily loaded with languages (in case of Standards V to VII). Out of 32 periods allotted per week to academic subjects 17, i.e. more than half the number are allotted to languages.
2. The language and concepts of modern mathematics are too difficult for teachers as well as for pupils.
3. The syllabi in physics, chemistry and biology introduced in place of general science (in some of the schools) are beyond the capacity of average pupils.
4. The administration part in the civics and administration syllabus is dull, boring and of not much educational value. It is only a load on memory.
5. Generally speaking the textbooks are too bulky and too difficult.
6. Curriculum involves much homework.

The researchers have discovered a very large number of extrinsic reasons that increase the load and stress of the curriculum.

1. Many teachers especially in rural area have not got sufficient knowledge of English, mathematics and science.

2. In both teaching and examination, too much stress is laid on memorising facts.

3 In some schools, some periods are allotted to recreational non-academic subjects (namely community living, work experience, art, music and physical education) are often utilised for teaching academic subjects.

4. In many schools classroom conditions are not healthy.

5. There are too many pupils in a class.

6. Home conditions of many pupils are very unsatisfactory.

7. Watching TV programmes consumes a lot of valuable time of the pupils.

8. Parents belonging to high socio-economic status (especially the mothers) drive their children to hard while those belonging to low socio-economic status are utterly indifferent to their children's schooling.

Recommendations

Together, the researchers have made as many as 100 recommendations for lessening the load and stress of the curriculum by simplifying the syllabi of the various subjects and improving the syllabi of the various subjects and the methods of teaching them and the circumstances in which they are taught. For the sake of brevity only few of the recommendations are given below.

1 In the mathematics syllabus, stress should be laid on everyday Arithmetic rather than on languages and concepts of modern mathematics

2. Instead of stressing knowledge and memory, emphasis should be laid on skills in the three R's (ie reading, writing and arithmetic) and on 'learning to learn'.

3 The language load should be reduced by beginning the teaching of Hindi in Standard VII instead of in Standard V.

4. The NCERT syllabi in special sciences should not be obligatory in any school, taluka or district. Pupils must have the option to learn general science instead of special sciences

5. The administration part in 'civics and administration' syllabus for Standard V to VII should be omitted.

6. Clear instructions should be issued to all schools that importance should not be given to memorising inessential facts in the teaching and examination of history, geography and science.

7. Teaching in the classrooms should be so improved that no pupil need do homework for more than an hour a day

8. The language of the textbooks should be simplified and their bulk reduced.

9 Number of pupils in a class should be 35 and in no case it should be more than 40.

When one reads these recommendations especially regarding laying stress on skills in the three R's and on learning to learn, one is likely to jump to the conclusion that above recommendations are a clear sign of a reactionary, obscuratists attitude and that they are completely outdated today when we are poised to usher in the computer age in our country

One may, however, be surprised to know that this kind of response to neglect the three R's and introduction of modern

mathematics in schools is not uncommon in USA—the country that is most advanced industrially, technologically and scientifically, the country that manufactures fourth generation computers. In fact, a strong movement popularly known as 'Back to Basics' has been raging in America since the 1970's and is still going strong!

According to Arthur W Foshay, the back to basics movement is a response to a real problem. The fact is that not enough students learn to read well, write well and handle arithmetic well (Education Digest Dec 1977 p. 9). Today, the same is the situation in India also. In fact it is thousand times worse in this country.

Research Officer, M.S. Bureau of
Textbooks Pune.

Educational Puzzle

*He could neither read
Nor he could write
But Rama and Krishna
In him, did unite*

Contributed by Shri V.N. Sharma Advocate,
Sironj (Vidisha) M.P.

(Answer : Shri Ram Krishna Parama Hansa)

How to Come Over Reading Disability

CHINNA OOMMEN

Nothing is more important for success in school than the ability to read and so when a pupil fails in reading a teacher must find out all the reasons that may have affected his reading performance and not just attribute it to 'laziness'.

Research studies reveal that reading disability is the result of a sequence of several contributing factors and that these various factors working singly or together impede or block successful reading progress. As learning to read is a long complex process, it is reasonable to believe that there are many factors that interfere and inhibit the progress of reading.

The findings of the various studies regarding the factors that are related to the problems of reading are given below :

Physical Factors

These include vision, hearing, speech, general health, neurological factors, cerebral dominance and directional difficulties.

As reading is primarily a visual task, good vision is important for learning to read. Faulty vision or deficiencies can create difficulty in seeing print clearly and also cause visual fatigue, strain and discomfort.

These act as irritants and lower the efficiency of the individual. Although the exact relationship between reading disabilities and visual defects is not conclusive, the research clearly indicates that the percentage of visual defects is higher among children with reading disability.

Two major visual defects that can contribute to retardation in reading are (1) refraction errors and (2) binocular difficulties—refraction errors such as strabismus and aniseikonia

These defects force the child to hold the book closer than the normal 16 inches. Near-sightedness produces blurred distant vision needs for reading from the blackboard. Farsighted children find it difficult to focus clearly at near points needed in book reading. However, these defects can be easily corrected, if detected.

Blurred and distorted images are characteristics of children suffering from astigma-

tism. The child gets tired easily and usually dislikes close work or prolonged distant vision.

Binocular difficulties present problems in focusing the two eyes accurately and simultaneously on a visual stimulus. In extreme cases, the conditions result in individuals seeing two images of a single object. Double vision also causes errors in focus. It is found that partial or incomplete focus is more apt to interfere with vision than a complete lack of focus. Slow focus also interferes with rapid and precise focusing, needed in reading.

Anisekonia, a condition where ocular images are unequal in size or shape in the two eyes has also been found to be related to reading difficulties. If the maladjustments are major, the child may see two of everything or the two images may be so badly blurred that the child sees neither image clearly. In an effort to suppress one image, the student loses its place or omits words or regresses. The tendency of the eye to deviate as in the case of strabismus, too, results in visual fatigue. As the reader gets tired his eyes tend to deviate even further.

Difficulties in binocular control lead to inadequate perception of words, poor comprehension, constant moving of the head and difficulties in concentration. Further more, the excessive amount of energy needed in maintaining single vision makes the child tired easily.

Difficulties with focus and anisekonia seem to be more common among poor readers than among good readers.

Auditory problems affect reading in several ways. To start with, the child learns to read using the language he understands and uses. This is influenced by the language he has heard. Further more, 80% of instruc-

tion in the elementary grades is done orally. Even in high school, a good deal of instruction is imparted orally. Therefore, a child who does not hear well or does not listen well will definitely have problems which affect his reading progress.

Three important aspects of hearing are auditory acuity (hearing), audition-working with sounds, and hearing loss. Often a student may have difficulty with all three aspects of hearing but sometimes the difficulty may be specific.

A child may have no hearing loss but may have difficulty in hearing sounds in words. At the same time he may have no difficulty in understanding the meaning of spoken sentences. Children with hearing loss have difficulty with all the auditory aspects of language, speech and reading. Some may have specific difficulty in bending sounds into whole words and recognising the meanings of words.

Losses in acuity involving the high tones affects the child's ability to deal with consonant sounds, blends and diagraphs. In low tone losses, vowel sounds are not heard clearly nor are the consonants r, g, b, h and their blends.

Inability to follow directions may also be a characteristic of students experiencing hearing deficiency. These students are likely to lose their places when listening to others and appear inattentive and careless. Hearing loss can also lead to speech defects which in turn can be related to reading problems.

The degree to which poor hearing is a handicap in learning to read depends on the amount of emphasis on oral instruction and the kinds of methods used for teaching/reading. Partially deaf children are seriously handicapped in classes where oral phonetic methods are stressed.

Relatively slight impairment of hearing frequently has marked effects on communication skills and verbal knowledge. Those with defects in both ears are more handicapped than those with defective hearing in one ear. Children with mild hearing losses tend to be a half a year in retarded achievement.

Articulation Disorders

Articulation disorders and language productiveness are the two aspects of speech that are important to reading. Faulty articulation may affect reading by causing confusion between the sounds the child hears others make and the sound he hears himself make when he associates printed symbols with sounds in reading. This confusion also interferes with the student's understanding of what is read. The student becomes more confused about word pronunciations and their meanings. Many children with speech defects become upset when asked to read aloud and as a result may develop a mental set against reading. The kinds of methods used can also aggravate the problem in reading for children with articulation defects. e.g. phonetic method that requires letter by letter sounding and blending. Certain types of speech defects however, affect oral reading more than silent reading.

General Health Problems

Learning to read is a difficult task. To succeed the learner must be an attentive, active participant. Any physical condition which lowers a child's vitality makes it difficult for him to sustain active attention to reading.

Chronic illness, malnutrition, general fatigue, poor general health often affect the child's progress in reading.

Frequent absence from school makes it even more difficult, for learning to read becomes a matter of catching up on missed work. Tired and unwell, the youngster may feel insecure about how to proceed. Some children are not able to work well in the classroom because they have not had enough sleep. This may be due to the result of late night television, movies and general outings. Also, poor living conditions also contribute to classroom inattention and ultimately reading problems.

Glandular disturbances, especially thyroid dysfunctions, are also cited as a factor contributing to problems in learning to read. A thyroid deficiency often results in marked obesity and mental sluggishness; a thyroid excess often results in weight loss, overactivity, fatigue and irritability. Neither condition is conducive to learning.

Social and Emotional Factors

Social and emotional reactions influence a child's reading failure or success; just as a child's reading success or failure influence social and emotional development. When a child experiences difficulty in school, life is complicated in a number of different ways. Constant failure and frustration may lead to strong feelings of inferiority which in turn may intensify the initial learning difficulties. Under the impact of continued failure, the child desperately attempts a self defence against increasing environmental pressure as well as the growing feeling of just plain stupidity. The child may withdraw into fantasies to escape the effect of further failure and insult to his ego or may act out aggressively against teachers or fellow students. Thus the child becomes a behavioural problem both at home and school.

Just as continued learning failure may

result in behavioural disturbances, social, emotional conflicts in turn may provide the casual factors in learning disability. A child who is worried, tense and fearful can not mentally focus on reading an assigned task any more than an adult who is anxious and worried. The child has an added problem besides his emotional problem that is independent of the learning failure; he has a feeling of insecurity due to his lack of success in learning to read. The self image of the learner is a very significant determinant in learning.

The emotional problems which prevent a pupil from paying attention and concentrating also interfere in the child's ability in learning to read. The relationship between maladjustment and learning to read is often circular. Maladjustment causes reading failure and the reading failure in turn increases the maladjustment and vice versa.

A pupil's desire to read also affects reading progress. Interest is an active force that influences the child's reading. Although some children come to school with an attitude favourable to reading, the attitude is not self perpetuating unless it is fostered by concerned teachers.

Neurological Factors

Among children who have severe problems in reading, there are a very few who have sustained known brain damage before, during or after birth. Some of these children suffer severe handicaps such as aphasia, cerebral palsy, marked mental retardation or debilitating motor problems.

In addition to the concern for the child with known brain damage, there has been a great deal of research and clinical data regarding suspected brain damage and

reading difficulties. Dyslexia, primary reading retardation, minimal brain dysfunction, maturational lag refer to suspected brain damage in the absence of medically verifiable brain pathology.

Subtle, often not detected neurological impairment associated with complications in pregnancy and birth is a cause of later reading disability among some children.

Instructional Causes

Important causes of poor reading are inadequate and improper instruction, absence of a systematic skill building programme, exclusive use of a single method of instruction, over crowded classroom, inadequate understanding of the nature and process of reading, lack of graded materials for the teaching of reading, lack of understanding of children's needs and abilities and absence of a readiness programme.

Inadequate teacher preparation is another factor that has a defect bearing on reading and language instruction. Instruction in the modern trends and methods of teaching reading in the elementary grades and the total time devoted to do practice teaching are very inadequate at present.

There is also a great dearth of a variety of good graded instructional materials available for teacher and children.

Language Background

One of the more obvious experimental deficiencies of some children is inadequate language development. Reading is a language experience and progress in reading occurs most readily when it is taught as one phase of the total communicative process. A common cause of poor reading is poor language ability.

Children who are learning English or

any other language which is not their mother tongue will encounter a number of learning problems. Many bilingual children lack experimental background, concepts and general information. Although they may be able to recognise words on the printed page, the words will be meaningless nonsense if they do not know what concepts they represent.

Reluctant Reader

Disinterest in the reading act is possibly the most serious problem presented by reading disability cases. A non-reader lacking basic reading skills but with the will to learn is an easier problem for a teacher than a child who does not want to read or learn to read.

A reluctant reader shuns reading; ignores reading tasks, seeks activities of all other kinds in preference to reading and intensely dislikes reading.

One of the obvious reasons for such reluctance is that the individual does not know how to read well. Not knowing what to read, having little or no opportunity to read, an environment which gives no value or prestige for reading skill (proficiency in cricket is admired more) are some other factors that cause reluctance in reading. Sometimes he may never have had a glimpse of the wider horizons of reading, he may be bored with reading or he may be faced with pressures of many kinds and many more demands on his time.

The factors discussed above are the most obvious reasons for disability in reading. As teachers we must realise that reading is a highly complex activity that requires a combination of skills and that it takes a number of years to become a competent reader. Teaching of reading

should not be limited to Class I. Just as in arithmetic, certain sequences must precede and certain operations follow (like addition before subtraction, multiplication before division) children should master each reading skill before proceeding to the next. Each succeeding skill is built upon the previously learned skill. Incidental and accidental learning cannot help students achieve all the skills in reading. Systematic instruction at each level is a must and evaluation of each skill should be done before proceeding to the next instructional sequence.

The reasons for a child's disability in reading are seldom simple; rarely is there a single reason. On the other hand it has been found that reading problems are caused by a multiplicity of factors all of which are inter-related. Reading difficulties vary from minor to very severe. These problems are highly individual problems, the roots of which may be varied or single. Each case therefore has to be studied separately. Unless physical, educational and emotional factors which may hinder normal progress in learning to read are identified early, and proper instructional adjustments are made, a disability case is apt to develop. Studies show that the earlier the causes are identified and helped, the greater the chances of success.

Reading disability comes gradually. Most reading disability cases are created and not inherent. When minor difficulties occur and are not recognised, their harmful effects become cumulative and frequently result in severe disability.

*Damodar Gardens, Besant Avenue, Adyar,
Madras 600020.*

Challenge of Education

A Policy Perspective

SUMMARY

1.1 This is a summary of a document entitled **Challenge of Education** circulated by the Ministry of Education for initiating a debate on certain facts, views and issues relevant to the formulation of a Policy for Education.

1.2 Education being a complex subject with wide ranging ramifications, definitive views on a new policy for it cannot be finalised without consulting the decision makers in the State and Central Government, and the parliamentarians, educationists, intellectuals, teachers, parents, students, entrepreneurs etc. This document aims to provoke a discussion by stating various view points in a forthright fashion. If people read it, comment on it and criticise it, it will have served the purpose for which it has been prepared

1.3 While preparing this document, it has been borne in mind that India is standing on the threshold of the twenty first century. Those being born now will finish their elementary school at the turn of the century. They will be face to face with unprecedented opportunities and challenges. To prepare for these and also to create a National environment for peaceful and harmonious development, it is necessary to reshape the education system since only education can imbue people with the knowledge, a sense of purpose and the confidence essential for building a dynamic, vibrant and cohesive Nation capable of providing its people with the wherewithal for creating better, fuller and more purposeful life.

1.4 India's constitution envisages a just, equitable and fraternal society which would assure the dignity of the individual and the

unity and integrity of the Nation. Policy planners in India are unanimous that while economic strength and vitality determines the scope and quality of political freedom, for millions the availing of the benefits of freedom depends on its being accompanied by an equitable distribution of goods and services. This is possible through expansion, dispersal and diversification of employment, which in turn implies equality of opportunity, particularly in access to knowledge and skills.

1.5 The Indian polity is characterised by a concern for the individual, not as a mere instrument of development but as an end in himself. This emphasises the importance of education for the development of self-confident individuals with a commitment to democratic values and National unity.

1.6 Education helps to bridge the chasm of disparities between people, socio-economic groups and regions and thereby reduces disintegrative tension. It develops human resources, which has a multiplier effect on utilisation of all other resources. Thus it is an investment in development.

1.7 Elementary education is the most crucial stage of education because the foundation of the personality, attitudes, self-confidence, habits, learning skills and communication capabilities is laid at this stage. Universal elementary education strengthens the fabric of democracy. That is why it was set forth in Article 45 of the Constitution.

1.8 Vocational education is essential for providing manpower for economic growth. It provides the link between the production function, employment and educational processes.

1.9 Higher education provides ideas and men to give shape to the future and sustain other levels of education. It provides the historical and ideological perspective to society. In addition, it supplies a wide range of increasingly sophisticated manpower required in industry, agriculture services and administration.

1.10 Education system cannot remove all the shortcoming of society. As a sub system of society, it tends to imbibe the characteristics of the total environment. It cannot maintain its excellence or its democratic character unless it is deliberately supported in these thrusts

1.11 Education planning can have social relevance only if its quantitative and qualitative objectives are spelt out by those responsible for National development.

Moreover, it acquires dynamism based on a National will to nurture the future generations for excellence, without unduly

exposing it to the rough and tumble of the current populist pressures

1.12 Educational goals are often postponed on the grounds of high cost of implementation. While deciding this, the social cost of a "no-change" option is seldom taken into account. At their best, the products of our schools, colleges and universities are comparable to the best scholars, technologists, doctors and managers in the world. Against this small minority, the preponderant majority has little to show by way of capacity for self-study, communication skills and sense of social or National responsibility. Even the gifted do not always show evidence of the expected commitment to social responsibility.

1.13 The above situation is largely because of excessive emphasis on degrees and an examination system which tends to evaluate students at yearly intervals largely on the basis of rote learning. Examinations and grades have lost much of their credibility. Neither the public nor employers trust them. Students relate education exclusively to examinations and, in the process, education has tended to become dysfunctional, producing a large number of unemployable youngmen and women. The system of examinations could be of the reasons why students and teachers find it difficult to resist progressive erosion of values. Unless this process is reversed by a reorientation of education, it will be difficult to contain exploitation, insecurity and violence. It is also necessary to counteract divisive forces arising from castes, religion and regional considerations which are straining the sense of National integration. Pride in National identity has to be rebuilt.

1.14 Education will have to be modernised to facilitate the modernisation of production, services and infrastructures. Besides, to enable young people to develop entrepreneurial ability, students will have to be exposed to challenges of new ideas and unfamiliar situations. To enable the teachers to do this, besides changing curricula and teaching methods, the attitudes and values of teachers will have to be changed through basic changes in teachers training.

2.1 India has made considerable progress since independence in terms of increase of all types of institutions, enrolment and the sophistication and diversifications of educational programme. It has, however, not been possible to meet the nation's aspirations from the view point of overall coverage, equitable distribution and quality of education. In terms of literacy, India is still amongst

the most backward countries with literates accounting in 1981, for only 36.2% of the population, with women, Scheduled Castes and Scheduled Tribes still at the level of 24.9%, 21.4% and 16.4% respectively.

2.2 We are still very far from fulfilment of the goal of universalisation of elementary education which was envisaged in the Constitution itself to be achieved by the year 1960. One of the principal reason for this is the high drop out rate (Classes-I, VIII) which continues to be above 75%. This rate is much higher amongst girls, Scheduled Castes and Scheduled Tribes.

2.3 The number of children going to middle, high and secondary classes has increased from 22 lakhs in 1947 to 340 lakhs in 1983, and the country now has 175, 000 schools for these levels as compared to 13, 000 in 1947.

2.4 The number of girls and boys successfully completing the higher secondary stage has risen from 2.37 lakhs in 1960-61 to 8.40 lakhs in 1981-82. The most disquieting feature at this level of education is that, even after 8 or 10 or even 12 years of schooling substantial number of pupils do not acquire the capacity to understand their physical, cultural or socio-economic environment, or to think for themselves. They do not enter the employment market with sufficient confidence of competence or vocational skills. Nearly 83% of students passing out of the higher secondary stream seek admission in colleges and universities. Only 20% of these are able to find a berth in professional or technical institutions.

2.5 If the Education Policy adopted by Parliament in 1968 had been implemented, 50% of the students at 10+ level of secondary education should have developed employment oriented vocational skills. By the year 1982-83 students intake in vocational courses at +2 level had reached just 60,000 per annum.

2.6 At the time of independence, there were only 700 colleges and 20 universities in India with an enrolment of 4 lakhs. Now the country has 5,246 colleges and 140 universities with an enrolment of 33.60 lakhs of whom 9.76 lakhs are girls.

3.1 The Education Policy of 1968 sought to relate education more closely to life, expand educational opportunities, improve quality of education, emphasise development of science and technology and cultivate moral and social values. While some significant achievements have been recorded, by and large, these goals have remained unachieved. In the meantime, new learning needs have

arisen due to the inexorable march of economic and social growth and progress in science and technology

3.2 A new approach to education is necessary. In the new design, capacity to learn will be more important than what is learnt and continuing education will be emphasised. Social and moral values will receive much greater emphasis. Access, equity and quality of education will be ensured through rigorous planning. Before such a design can be prepared, it is necessary to evaluate the past experience, assess successes and failures and examine as to how far mechanisms for formulating policies, allocating resources, ensuring inter-sectoral coordination, enforcing standards and monitoring and evaluation need modification.

3.3 It is apparent that the most important reason for slow progress has been an acute paucity of resources. Growth in enrolment and rise in prices have outstripped the increases in budgetary allocations. Expenditure per student has, over the years, declined in real terms. More than 90% of the expenditure is on teachers salaries and administration. Practically nothing is available to replace black-board or buy chalks or charts and teaching aids or even minimum school amenities.

3.4 People are generally apathetic to an education system which does not appear relevant to them and which has little accountability to them. The school system seems to have become a part of a gigantic bureaucratic set up which does not provide sufficient scope for intervention at local levels and is also frustrating for teachers with initiative. Consequently, the education system has largely become the responsibility of government. Greater involvement of the community predicates delegation of authority to enable it to keep an eye on the performance of schools and specially of the teachers. The sheer size of the system creates an environment of anonymity for the teachers and individual schools, in which any kind of default or creativity fails to come to notice.

3.5 To enable girls and boys from poor families to receive the benefit of education despite their inability to attend school regular hours, new and non-formal approaches have to be adopted. These would, however, require much greater support in terms of instructional material and regular monitoring and appraisal.

3.6 In absolute terms, there were more illiterates in 1981 (437 million) than there were at the time of independence (300 million). Nonetheless, as a per cent of population, literacy has progressed steadily from 16.67% in 1951 to 36.23% in 1981. There is, however, great disparity in the progress made, not only

between men and women but also between regions. Female literacy in rural areas varies from 64.7% in Kerala to 5.4% in Rajasthan. In Bihar, Madhya Pradesh and U.P., which account for 38% of the rural families in the country, female literacy percentages range between 8.99 and 10.17. This situation reflects the fact that the positive results from elementary and adult education are largely nullified by a high rate of growth of population.

3.7 There is a positive correlation between literacy and acceptance of family planning. Because of this, both elementary education and adult education should be assigned a high priority. In any case, if things continue as they are, in the year 2000 A.D., there would be 500 million illiterates in India.

3.8 There is also a definite link between adult literacy and children's participation in schools. Unesco's studies have revealed that adult literacy level of 70% is critical threshold for universalisation of elementary education.

3.9 At the level of secondary education, today, only 22% of the students of the corresponding age group are in the schools. Of the few who come to the schools, very few have access to schools with proper buildings, laboratories, libraries or playgrounds.

3.10 According to All India Educational Survey of 1978, many primary and middle schools do not have even basic amenities. In so far as primary schools are concerned, 9% had no buildings whatsoever, 41.5% had no blackboards, 72% had no library facilities and about 53% had no playgrounds. In the rural areas, 89% primary, 70% of middle and 27% of secondary and 10% of higher secondary schools had no urinal/lavatory facilities.

3.11 Vocationalisation in the higher secondary stage was a major plank of the education policy of 1968. 50% of the students at +2 stage were to go into the vocational stream. The actual figure is too insignificant to deserve mention. This is largely because neither the physical facilities nor a detailed plan of action, complete with details of employment opportunities, nature of diversification required, appropriate course curricula and teachers trained for vocational training are available at present. In addition, social values which denigrate even skilled manual work also stand in the way of vocationalization.

4.1 College and university education has greatly expanded since independence. Taken as a whole the general condition of colleges and universities is a matter of concern. Many of these are known for rampant casteism, regionalism and inbreeding.

Some of these are virtual battlefields in which political and other factions, backed by teachers and aided by other staff, often fight pitched battles for power and supremacy. Some Vice-Chancellors spend their entire terms of office behind barricades.

4.2 There is a widespread feeling that the present state of higher education is largely because of overt and covert interference by external agencies. This underlines the importance of real autonomy. However, attention has also to be given to the equally important aspect of accountability. Often the Vice-Chancellors, who are considered responsible for running universities, function in conditions of fast dwindling prestige of their office. They have to be at the doorsteps of government officials for funds required for running the university and they have to compromise to get the co-operation of university bodies.

4.3 The U.G.C. has made an enormous contribution to establishment of academic norms and promotion of innovative programmes. It is, however, debatable as to the extent to which it has been able to uphold the standards of education or enforce a minimum level of performance on colleges and universities. This tends to become difficult because many a time a move to refuse or reduce grants to those institutions assumes the character of confrontation between the State Governments sponsoring them and the Central Government funding the U.G.C.

4.4 To a great extent the quality and employability of college graduates is adversely affected by the fact that arts and humanities are offered as unilinear programmes of study unrelated to the requirements of real life, multifaceted development of personality and the reasoning and learning capabilities of students. In the case of sciences, courses are designed essentially to explain concepts without supportive arrangements in the form of laboratory apparatus, kits etc.

5.1 There is no gainsaying that technical education has made a significant contribution to India's economic development. However, the system is now facing serious problems of obsolescence of machinery and equipment and the lack of wherewithal for research and training in respect of new technologies. These inadequacies have been removed for sheer survival.

5.2 Other measures necessary for effecting improvement in institutions of technical education are : finding ways to attract good teachers; increasing interaction with industry; involving the faculties in application of modern technology for the benefit of the common man in rural areas; reducing the disparities

between State Colleges, Regional Colleges and IITs; and establishment of networking arrangements between different types of institutions.

5.3 It is also argued that instead of subsidising education in engineering institutions at the cost of the taxpayer, the organised private sector, which absorbs the bulk of manpower emerging from it, should be made to support technical education to some extent

6.1 The role of teachers is central to all processes of formal education since they interpret the policies and programme as much through their personal example as through teaching learning processes. Unfortunately, enough attention has not been paid to the updating of curricula for their training. Teacher education, therefore, has little relevance to the needs of the day. This inadequacy is compounded by the fact that teaching is the last choice in the job market

6.2 The participation of a section of teachers in party politics has had serious repercussions on education. It has led to the politicisation of teachers organisations, has affected discipline and their wholehearted application to their time-honoured role.

6.3 There is widespread concern, particularly amongst teachers themselves, about the manner of implementation of the merit promotion scheme for teachers. Many of them feel that once age and years of services rather than erudition and competence as teachers, becomes the basis of advancement in career, not enough incentive will be left for pursuit of excellence

7.1 There are wide disparities in the system of education from the view point of access, equity and impact. Even though rural areas account for three-fourth of the population, they are getting much less resources for education. While the well to do, who have access to the privately managed "quality" institutions located in urban area, take away the lion's share of unreserved seats in professional institutions, children of rural areas are put to a great disadvantage because of the relatively poor quality of rural schools

7.2 Girls, children from the Scheduled Tribes and Scheduled Caste have made considerable progress during the last decade. In spite of this, they still are at the lowest ladder of educational attainment. While girls suffer because of social prejudices and their commitments to the care of siblings and household chores, the children of Scheduled Castes and Scheduled Tribes suffer from disabilities which cannot be removed merely by reservation of

seats. Majority of them, besides suffering from the limitations of first generation learners also suffer from the after effects of early childhood malnutrition, a sense of social isolation, unsuitable work habits and lack of self confidence in realising their academic potentials. They find it difficult to adjust to the general stream of students. To obviate the resulting psychological strain, special programmes are needed for enhancing their competence and facilitating their adjustment.

7.3 The interface between education and job market is characterised by lack of complimentarity. Jobs requiring general education are not increasing at the same rate as the availability of manpower. On the other hand, for many jobs requiring technical competence and manual skills, appropriately trained manpower is not available in sufficient numbers. The most glaring example of lack of work orientation is provided by the fact that in the I-V, VI-VIII, IX-X or 10+stages of education, there is nothing in the school system to increase the students' proficiency for the unorganised sector in agriculture or related rural occupations.

8.1 It is true that from Rs. 114 crores in 1950-51, the expenditure on education went up to Rs. 2304.16 crores in 1976-77. However, it is also true that because of inflation and growth of the number of students, at constant prices of 1970-71, between 1950-51 and 1975-1976 per pupil per annum expenditure went down, from Rs. 468.9 to Rs 330.9 for college education and from Rs. 1640.4 to Rs. 890.1 for professional education, registering a marginal increase of 1.1% per annum in the case of elementary education rising from Rs. 41.9 to Rs 55.2 respectively.

8.2 Despite the constitutional imperative for elementary education, within the plan outlays for education, its share declined from 56% in the first plan to 35% in the second plan, 34% in the third plan and 30% in the fourth plan. In the Sixth Plan, its share was 36%. On the other hand, between the first and sixth plan, the share of university and college education has gone up from 9% to 16%.

8.3 The States provide around 70% of the overall plan expenditure for education. Their capacity being variable, children from poorer States like Bihar, U.P., Orissa, J & K, Madhya Pradesh and Rajasthan are at a great disadvantage as compared to better off States. Per capita budget expenditure on education in 1982-83 was as low as Rs. 40.5 in U.P., Rs. 49.4 in Madhya Pradesh and Rs. 51.2 in Bihar as compared to Rs. 100 in Punjab and the all India average of Rs. 68.2.

9.1 Education policy is an instrument for shaping the future. It has an impact on a whole generation. It can be framed by a few people on the basis of their own perceptions. It calls for the involvement of those dealing with or interested in education, in an open ended discussion on various viewpoints and issues.

9.2 Besides developing physically, intellectually and aesthetically integrated human beings with a scientific temper and democratic values as well as social awareness, education has to imbue the pupils with a healthy attitude to hardwork and dignity of labour, commitment to principles of secularism and social justice and dedication to the integrity, honour and the development of the country. In addition to this, for economic development and employment, education has to equip young people with appropriate knowledge and skills.

9.3 Besides integrating the individual into the social system, education also reduces disparities between human beings. In view of this equal access to education in all citizens are justified in expecting.

9.4 Education provides support to all other spheres of development. In return, it must also receive support from them in its endeavours. No law and order system can survive if even educated people do not have respect for life or a sense of right or wrong. Democracy and civic life becomes a casualty if education does not make them tolerant of a different point of view. A country cannot grow if a spirit of adventure and the confidence to innovate is not instilled in the children. No programme requiring participation of the masses in development can make a headway without the input of education.

10.1 There is a widespread feeling that the system of education cannot be improved by marginal changes and that this is the time for attempting its radical transformation. There is also a feeling that purposeful education is an indispensable instrument for the overall transformation of society, curbing fissiparous tendencies, creating an atmosphere for equity and social justice and modernizing production. It is also recognised that the outreach and effectiveness of education can be enhanced dramatically by the use of new educational technologies.

10.2 Educational planners are convinced that a good policy gets checkmated during implementation if the attitudes of those involved in implementation or the constraints inherent in the environment are not kept fully in view. Inevitably any radical change in the education system will come in conflict with vested

interests benefitting from the present state of education. Changes in the examination system, innovative approach to teaching, development of new curricula, enforcement of discipline, restructuring of management and decentralisation of the administrative authority will encounter strong resistance.

10.3 Depoliticisation too will be opposed not only by politicians who may lose their cadres but also by some of the academic and non-academic staff who will lose their capacity to hold institutions to ransom.

10.4 The present orientation of media, lack of trained manpower for software development, non-availability of a television channel committed to educational use and the absence of well established pedagogy for distance education will also, in the short run, operate as constraints.

10.5 The inherent difficulties faced by the poor with regard to participation in education has to be regarded as a major problem in universalisation of elementary education. Non-formal and part-time education for children unable to attend the school in regular hours is best conducted by voluntary agencies. In the absence of these, in many areas, this approach will run into difficulties.

10.6 In the context of the poor, the present orientation of research and development activities in technical institution may also pose difficulties. It will not be easy to persuade them to pay special attention to the generation of relevant knowledge for rural and unorganised sector since, in term of widespread recognition and material benefits it will not offer the same rewards as working for the organised corporate sector.

10.7 Legal constraints are often more implacable than others. In the Indian situation, the implications of the constitutional amendment to make education a Concurrent Subject are still to be worked out. The Central Government will have to decide upon the parameters of intervention for influencing the National Education System—for a qualitative improvement in prioritisation and performance. Amongst others, it will have to be decided as to what measures should be taken to see that language does not remain a barrier to mobility in the India of tomorrow. In this context and also in relation to the objective of National integration, the need and means of establishing a uniform National core curriculum will have to be considered.

10.8 If the management of universities is to be restructured to align them to the realities of the day, State and Central

governments will have to amend their laws. The much debated issue of whether or not the Central Government should assume some powers for depoliticising and modernising the universities will also have to be decided through consultations.

11.1 It is urgently necessary to think carefully of financial constraints because without adequate resources it will not be possible to fulfil the objectives of universalisation of elementary education, expansion of vocational training, removal of illiteracy, improvement of teaching, and establishment of institutions of excellence. How the necessary resources may be raised is a matter for urgent consideration. In this connection, perhaps, a Joint Commission of Centre and States could be set up to study the problem of resources for education and work out a strategy for mobilising these on a long-term basis.

11.2 Education is no more than a sub-system of the total societal system. It is therefore, conditioned by the environment and it also, inevitably, displays its salient characteristics in its own functioning. Indian society does not always respond warmly to new initiatives and change oriented measures. The intellectual sophistication nurtured through centuries of philosophical debate is misused by the bureaucracy and the intellectual establishment to frustrate new moves, without appearing to do so, by circumscribing these with so many preconditions and qualifying clauses that the whole momentum is lost.

11.3 Two other characteristics need special mention. Firstly, the disinclination to delegate real power to lower formation will be an obstacle to the establishment of a meaningful nexus between the school and the community. Secondly the compartmental character of the system will create difficulties in establishing horizontal linkages between education and other interdependent development activities.

12.1 Taking an optimistic view of the success of measures for population control and also of the success of universalization of education it appears, on rough calculation, that the budgetary requirements for school education, at the same unit cost in 1990 will be four times the level of allocations of 1980-81. India will require roughly 22 lakh additional teachers by 1990 over the number (21.7 lakhs) in 1981. These estimates are based on the quality of school education remaining unchanged. This, however, is unrealistic. Provision of a minimum physical facilities cannot be delayed.

13.1 Considering the above scenario and the constraints on

continuous participation in education beyond 11 years of age, some educational planners have suggested a model of universalisation of education which ties up the Anganwadis with primary schools and provide for pre-primary and primary education upto class V. It also advocates distance education through Open Schools on a large scale between Classes VI to VIII and large scale diversion into vocationalisation at an earlier age than envisaged in the 10+2+3 system.

13.2 A strategy for the spread of education and improvement of its quality is unthinkable without establishing a learning society in which people of all ages participate in continuing education. Such an environment cannot be established without a massive thrust for adult education which will not be concerned with mere literacy but will seek to enhance economic performance as well as the quality of the life of participants. It has been recognised that women will have to be assigned a central place in the programmes of adult education. If they are convinced of the benefits of education, the programme of universalisation of elementary education in general and the participation of girls in particular, will be greatly strengthened. It will also provide dynamism to the programmes for family welfare, energy conservation, prevention of deforestation, health care, immunisation, etc., besides expanding the base for democracy.

13.3 Particular emphasis has been placed on vocational programmes, as a part of the 10+2 stage of the secondary system and also before this stage and outside this system. An important conclusion in this is that vocationalisation should not be linked only with employment in industry. It should be aligned with agriculture, the services sector and various programmes of rural development as well. It should also prepare young people for self employment, it needs emphasis that vocationalisation is not an inexpensive programme since it often involves considerable expenditure on machinery, equipment and consumables. Therefore, it should be taken up after ascertaining the probability of finding jobs for those who are inducted into it

13.4 Amongst the major constraints to vocationalization are: the absence of realisation models for assessment of manpower requirements; resistance of certain castes and classes to vocational training; absence of vertical and horizontal mobility for those who go into the vocational stream; and lack of clarity about the relationship between vocationalisation and professional education on the one hand and with production centres on the other.

14.1 Other ideas which have been highlighted are the relationship between all kinds of education and the social system. It has been suggested that all streams and stages of education would acquire much greater meaning if educational system is decentralised and its management is assigned to the community participating in or benefitting from it.

14.2 The community participation implicit in this has a particular relevance to school education which is sought to be placed increasingly in the hand of village committees, obtaining from them resources, assistance and guidance District Education Centres would be the focal points for educational planning, training monitoring, extension and action research. Decentralization of the planning function will also ensure that the special needs of education for the handicapped and the specially gifted children will not be neglected.

14.3 As far as higher education is concerned, a strong body of opinion favours measures to divert those who do not have a scholastic bent of mind to vocational training. Some of the measures suggested in this connection are administration of scholastic aptitude tests for entry into colleges and universities and delinking of degrees and jobs.

14.4 Other measures proposed for improving the relevance and quality of undergraduate and post-graduate education are a purposeful move for granting autonomy to more and more colleges, culminating eventually in moving entirely away from the system of common examinations and affiliation between universities and colleges. It has also been suggested that courses in arts, science and humanities should be restructured on a modular pattern with much greater inbuilt flexibility to establish closer links with the pupil's interests, society in the world of work. In these, it will be possible to combine courses with orientation towards theoretical knowledge, languages, communication skills, culture, sports and programmes of a vocational character.

14.5 A moratorium has been proposed on the expansion of the traditional pattern of college, favouring the opening of only those colleges which have a vocational character and are linked with identified multi-disciplinary tasks. New colleges will bridge the world of work with the world of knowledge by offering integrated courses for: Agriculture and Home Economics; Forestry and Land and Water Development; Urban Planning and Transport Management; Public Management and Office Management etc.

It has been proposed that multipronged strategy for the New

Education Policy should seek to integrate the requirements of universalisation of elementary education, production of sophisticated manpower to deal creatively with new technologies; diversified vocationalization; and the creation of an overall environment for development through adult and continuing education.

Educational Puzzle

*We are always for the good of others
Our object is never abject
When we are whole-heartedly done
Even the Almighty can not reject.*

Contributed by V.N. Sharma, Advocate
Sironj (Vidisha) M.P.

(Answer : Prayers)

THE PRIMARY TEACHER

APRIL 1986

VOLUME ELEVEN

NUMBER TWO

CONTENTS

EDITORIAL

1	Pursuit of Excellence Through Education	SHAMSUDDIN
4	Importance of Non-verbal Communication	S. L. MAKKAR
7	Formation of Concepts in Children	J. P. GUPTA
13	Visual Thinking and Education	ARUNIMA VATS
17	School Adjustment : Part of Learning Milieu	M. P. BHASIN
21	Motherese in Nursery and Kindergarten	RANJIT MUKHERJEE
	TEACHERS WRITE	
24	Teacher Absenteeism in Primary Schools	L. S. SINHA
28	Mass Media for Promotion of Sports and Physical Education	P. D. SHARMA
31	NBT's Gift to Preschoolers	R. MURALIDHARAN
	NEWS AND VIEWS	

EDITORIAL

Pre-school Education

Pre-school education became popular in the West with the incoming of industrialisation wherein women gradually started accepting jobs for a specified period of time. This gave rise to early childhood care centres for working women euphemistically called 'creches'. Slowly, compulsory education was introduced and with the rise of middle class which at one time was non-existent, education as such becomes a tool for competition.

The earlier classification of elementary and higher education was modified to make it appear like a ladder with clear-cut divisions of primary, secondary and higher secondary and higher education. Home was meant to serve as a springboard for entrance to the education system. The rise in the cost of living made the middle class women to think of joining the work force. The awareness that education could serve as a tool in competitive job market and the feeling that women have to work outside their homes gave birth to the concept of pre-schooling. In fact compulsory education age also contributed to a large extent in the growth of pre-school education because researches have borne out the fact that a child takes time to acclimatize to school education and those who start early, settle down well in the education system.

In India too, this sort of logic is operating in the opening of pre-school institutions. Their growth is now being attributed to commercialization of education and personal greed. But as the results are happy better and better arrangements are being made in this regard. Pre-schooling is acquiring a certain degree of respect and popularity. We are not far away from the day when the government may like to intervene in its provision. Special teaching techniques and toys are being discovered or created increasingly. It augurs well for India's sense of competition. True, pre-schooling has its own strain on the child but in view of future strains it cannot also be avoided. Our wish is that this level of education is also perceived by all concerned as a necessity and administrative support is provided for its proper functioning.

Pursuit of Excellence Through Education

A Few Issues

SHAMSUDDIN

We may talk of our achievement in terms of expansion of education but we have missed excellence in it and hence all this hue and cry, chaos and confusion and ultimately no peace and happiness in life.

Once a well known scientist was very eloquent about the achievements in the field of science. Addressing a mammoth gathering of simple villagers, he was telling all about the victory of science over nature such as flying like a bird in the sky in an aeroplane, floating like a fish on the surface of the ocean in a ship, going over to the Moon in a rocket and so on. Just at this moment one of the rustic got up and said, "Well Sir, I agree with all your achievements. You have surely taught us how to fly in air, how to float on sea and how to go over to the Moon; but we are sorry to tell you that you have not taught us how to live on this earth in love, peace and happiness."

So such is the sad plight of our highest achievements in the field of knowledge. It is true that science has achieved highest progress in this 20th century but it is equally true that never in the history of mankind

there was so much danger to its peace and happiness as it is today. Not only that but the deadly weapons like atom bombs have brought the humanity to the very brink of its destruction. Under the circumstances we are forced to think and ponder over the type of achievement which may lead to the betterment of human life on this earth.

To some, the term 'education' may simply mean a system of instruction that is intended to equip each student with the qualifications and attributes that indicate intellectual maturity. They lay stress on the achievement of knowledge which is only one aspect of education. In fact 'education' is a state of evolution; one that has no beginning and no end. Here education connotes a great deal more of the potential than the actual. If we take a good, healthy and new look at education, it becomes necessary to compare what it is with, what it can and should be.

It is an admitted fact that education is not merely the main instrument but rather the most powerful means by which social, political and economic changes can be brought about in National life. It is for this reason that during the last two decades after independence, serious thought has been given to the changes and reforms in the system of education in India.

Realizing the need for the reorientation of the aims and objectives of education at secondary level, the Secondary Education Commission recommended the reorganisation of the pattern with a view to prepare citizens for a secular democratic republic, to increase their vocational efficiency and to develop their all round personality. The Kothari Commission took still broader view and thought of education in terms of National development. It has envisaged a plan of education which besides increasing the productive efficiency of pupils will help to achieve social and National integration.

But inspite of all these high sounding proposed reforms, the bitter relaity is not hidden from us. We cannot close our eyes and ears from the state of affairs existing in schools and the day-to-day vehement criticism levelled against our system of education. The educated unemployment in youth, growing indiscipline among students, negative attitude among teachers, indifference among parents and lack of faith in education among the people in general are some of the problems vexing the heads of the intellectuals in the country.

In order to have excellence in achievement, education will have to be viewed from a new angle. Then it will be the concern of not merely teachers, parents and students but the society as a whole will have to evince keen interest in it. For teachers, it

will not merely be a profession to keep their body and soul together but a religion in which to work with a missionary zeal. The parents will have to share their responsibility of laying down the foundation of good habits, manners etc in children while in the family and keep day-to-day watch on them as they progress in school. The students will have to look to their hands, head and heart with a purpose and thinking that the God has given them hands to work, to help, to heal and to do something good to others; the head to think of something good and great not only for themselves but for those around them and the heart to feel, to love and to have faith. Then they will proceed ahead making their achievement excellent in life

In this, education will be not mere achievement of knowledge but self realization, character formation and integrity of the whole personality of pupils. Now the question arises how to pursue this excellence through school education. Should we change the curricula introducing some such activities which will lead to the development of humanitarian outlook in students? Should we change our methods of teaching making learning more interesting and attractive? Should we involve parents, guardians and other members of society in day-to-day activities of the school bringing about closer contact between society and schools? Should we make education more informal than formal and do away with the system of examination? Should we make schools the centres of all off time activities, hobbies and recreation of pupils? Is it feasible and practicable to achieve all these under the situations prevailing in our institutions today?

These are some of the problems on which

people may have controversial views. Hence it is the duty of the intellectuals and the educationists in the country today to put their heads together and think collectively

in terms of these important issues to find out the workable solution.

—7/150, Baijnath Para,
Raipur (M.P.)

FORM IV

(See Rule 8)

1. Place of Publication	National Council of Educational Research and Training (NCERT) Sri Aurobindo Marg, New Delhi 110016
2. Periodicity of Publication	Quarterly
3. Printer's Name (Whether citizen of India ?) (if foreigner, state the country of origin)	Aiceo Press Yes N/A
Address	5, Deshbandhu Gupta Road, New Delhi 110055
4. Publisher's Name (Whether citizen of India ?) (if foreigner, state the country of origin)	C. Ramachandran, IAS Yes N/A
Address	Secretary, NCLRT, Sri Aurobindo Marg, New Delhi 110016.
5. Editor's Name (Whether citizen of India?) (if foreigner, state the country of origin)	Dr. R.P. Singh Yes N/A
Address	Head, Journals, Cell, NCERT, New Delhi 110016.
6. Names and addresses of the individuals who own the newspaper and partners or share holders holding more than one per cent of the total capital,	National Council of Educational Research and Training New Delhi (An Autonomous Body of Government of India in the Human Resource Development Ministry)

I, C. Ramachandran hereby declare that the particulars given above are true to the best of my knowledge and belief.

C. Ramachandran
Publisher

Importance of Non-Verbal Communication

S L. MAKKAR

Communication is the process of transmitting information between individuals. According to Charles Cooley, it is the mechanism by which the human relations exist and develop through the symbols of the mind. It includes facial expression, gestures, tune of voice, spoken, written and printed words and the attitude. In broader terms, communication may be verbal and non-verbal.

In many communication situations the non-verbal communication is considered to be as important as the verbal communication but in certain situations even this is more important than the verbal communication. In the evolution of human species, non-verbal communication seems to have been appeared first. In the development of an individual, the non-verbal communication precedes the verbal communication.

The term non-verbal communication has been applied to a broad range of activities. Communication in the form of behavioural actions influences considerably the teaching-learning process. All signs, symbols, actions and events in the classroom convey certain messages to the students. It is the students

who are always on the look to discover some non-verbal behaviour on the part of the teacher to increase their understanding and to decrease their confusion.

However, non-verbal communication is a communication without the use of words. Thus, we can safely say the behaviours are significant even in non-verbal communication without the use of words. The signals and symbols used unconsciously are also included. The non-verbal communication is a language of sensitivity. It includes a smile or frown that conveys a lot more than words. Emotions are expressed non-verbally. The silent anger is more tense than the one which is expressed in words. A look by the teacher may indicate dislike for a student. On the other hand, it is complicated that it may convey the whole attitude.

Non-verbal communication reflects the implicit values of culture and helps to express attitudes and feelings which are difficult to be understood by the other means. The behaviour in the classroom teaching have both verbal and non-verbal elements. Non-verbal communication does

make a difference in students learnings in the classroom.

Throughout the teaching period, there are many occurrences which can be classified non-verbal events. These have strong impact on students' learning than the formal teaching. To know these non-verbal behaviours we need to understand the non-verbal codes. Non-verbal codes have even been used in the classroom and formal teaching. Teacher should be conversant fully in order to make his lessons in the classroom interesting.

Eye to Eye Communication

The eye appears to be an effective transmitter within the framework of the face. Eye contact yields information regarding the student's dreaming activities, emotional feelings and even his thought patterns. In a classroom, a teacher conveys a lot and in turn receives lot of information through eye contact. In the classroom when a question is asked by the students who do not know the answer tend to avoid having eye contact with the teacher whereas those who know try their best to catch the eye. Besides this, the eye contact with the teacher makes the students feel that they are appreciated in the class. The teacher-student eye contact can also help in class management. Thus, eye contact is vital and indispensable in the classroom instructions.

Gestures

Some gestures may be self explanatory whereas others may be more deep in meaning. A frown from the teacher may discourage the student whereas smile does wonders in encouraging him. Similarly, the nodding of the head by a student indicates

that he is listening attentively to what the teacher is saying. Other common gestures observed in the class are biting of lips, glaring, raised eye brows, smiles, hand movements, nose movements, etc.

Postures

A teacher can easily know from the posture of the student whether he is interested in the classroom instruction or not. The posture pattern early in the morning classes is entirely different from that in the afternoon classes. The teacher's posture is also an indicator to the students. In case, the teacher sits or leans constantly, it shows his weariness.

Skin

A student caught doing a wrong act in the classroom turns red. In the examination hall, the student who does not know the answer to a question may turn pale or even starts perspiring profusely. The teacher through these non-verbal signals and signs immediately detects what may be wrong with the students.

At a first glance, voice is a verbal mode but closely interwoven around among the words, tone, volume, pitch, hesitations, quirking, stammering and silences etc. Emotions such as anger, fear or enthusiasm all come through non-verbal communication. Sometimes the tone of a teacher gives permission to the student for a particular job. Likewise, high and low pitch of the voice of teacher leads to better comprehension and understanding. Hesitation on the part of the student may give an idea of his insecurity to rise to the situation and his double mindedness to make a choice of the best course of action.

There are certain points which should

be kept in view by the teacher to make the teaching learning process effective :

1. The tendency to overlook the students must be avoided.
2. Efforts to detect students in need and assist them should be made.
3. The teachers should make use of the non-verbal signals and symbols expressed by the students.
4. The students should be made to feel that the teacher is interested in their questioning and proper response may be shown to them.

5. There should be awareness of the behavioural requirements and expectations for students in the classroom.
6. The feedback provided by students should be carefully considered and evaluated.
7. The teacher should make himself fully conversant with the non-verbal communication.

Associate Professor Deptt. of Ext Education PAU Ludhiana

ADD TO YOUR KNOWLEDGE

"It is well recognised that the child's education should be intimately associated with some craft or manual activity. The mind is stimulated thereby and there is coordination between the activities of the mind and the hands. So also the mind of a growing boy or girl is stimulated by machine. It grows under the machine's impact...and opens out new horizons."

—Nehru : Discovery of India
P. 416

Formation of Concepts in Children

J. P. GUPTA

The educators should never lose sight of the fact that concepts are an integral part and life of the thinking process. In research also they play a very significant role. Without making use of concepts, it is practically impossible to conduct any research on learning or thinking. Concepts remain basic to learning and thinking process.

The term concept has been defined by the psychologists in a variety of ways. The apparent impression that emerges is that many of the definitions are exclusive of others. Any particular definition is indicative of the fact that it contains certain aspects which fascinated and won the favour of the author, making him define the term in the way he has attempted. The various definitions must be viewed in their various aspects in order to have the clear perception of the term. This implies an understanding of the various components constituting the definitions.

David H. Russell says, 'Concepts are learnings that permeate thinking'. Smoke is of the opinion that concepts are marked by 'consistency of differential generalized symbolic response'. This latter definition emphasizes that concepts are symbolic, i.e., they represent or stand for something else.

Also the concepts have been referred to as differential which means that various concepts differentiate one thing from the other. In this sense concepts function to make distinctions between the various things. Further, concepts are described as generalized response. This means that it is the group as a whole which is centre of attention and not an individual member of a class.

A review of the work done relating to concepts indicates that the definitions, in general, lay emphasis on one or more of these following points :

1. Concepts are not sensory data. They come into existence as a result of interaction amongst various processes such as association, elaboration and combination of various experiences and thought processes.
2. Previous experiences govern the formation of concepts. These are basic ele-

ments which go a long way in the attainment of concepts. The experiences and thought processes are bricks and mortar which are basic for the erection of the superstructure of concepts

3. The stimulus leads to a certain response In between S and R, a number of internal processes operate which serve as links in combining the discrete sensory experiences.

4 The ties or links provided by these internal processes are symbolic in nature

5 Concepts represent selective factors. Infact the less dominant details are discarded in favour of the dominant ones. The dominant details distinguish themselves and stand out clearly Considered in this light the concept formation is more near to abstraction (as it stands for dominant details).

Edgar Vinacke has tried to combine the outstanding features of various definitions in order to formulate a better definition. According to Vinacke 'Concepts represent regulating (selective) system which link separate sensory impressions, depend on past experiences and are organized apart from direct sensory data' He feels that most of definitions contain some element of truth and emphasize one or the other aspects. His own definition seems preferable because it combines the essential features and unique characteristics of most of the definitions.

What is Concept Formation

Some writers identify concept formation with abstraction. They are of the opinion that during the process of concept formation sensory experiences are linked with one another in such a way that dominant details stand out distinctively, whereas the minor details are discarded. Taken in this sense

concept is a response which stands for dominant details.

Many other thinkers emphasize generalization and press that abstraction works towards the isolation of dominant details which may be used as 'a basis for responding similarly to the separate objects linked by abstraction for responding to other objects similarly linked'. In case of adults' abstraction and generalization, both activities are on a level which is characterized by increased consciousness, control and motivation.

Concept formation is not mere abstraction or generalization but it involves both analysis and synthesis The information is not obtained passively but it is so organised that an intergrated and total picture emerges

Planning a Study

The two major problems encountered in the study of concepts of the children are :

- 1 How to discover the ability of a child to form a concept ? and
2. What concepts are known at different age levels ?

In attempting an experimental study of the formation of concepts certain additional problems also make their appearance. These are :

1. What should be the criteria ? That is, how many correct responses are needed in order to be sure that a concept has been formed.
2. How to combine time, error and repetitions while scoring ?
3. The amount of the practice or the amount of information conveyed by the trials, presents another problem.

Methods Used

The methods used in the study of formation of concepts are not strictly exclusive of one another. Three of the methods which appear overlapping are :

1. *Free Association Method* : In this method subject is required to give his associations with concepts. Good made use of this method. He found that it was possible to group associations in specific categories.

2. *Analysis of Products* : This approach closely resembles the projective techniques used in the evaluation of personality. Through the analysis of children's speech, writing and drawings, the teacher becomes aware of the correctness and completeness of ideas possessed by the children. This analytical approach also unveils children's private concepts which otherwise are not communicated by the child perhaps because they may be non-acceptable to the society.

3. *Discrimination Method* : In this method the subject is asked to note 'likeness and differences'. In Hanfmann Kasanin Test the children are to sort out the blocks and to explain the basis of sorting. A variation of the discrimination method requires the subject to pick out the 'one' that is different from 'others'.

None of the methods discussed above is complete to depend upon. For a coherent picture and comprehensive understanding an integrated approach will prove more effective.

Experimental Approach

The experimental approach with children is somewhat different than with adults. With children the interview and questionnaire methods are more common and

have been found more efficacious in the exploration of the realm of concepts. Specifically the performance has proved more suitable in making a judgment of the ability of a child to conceptualize.

In making the study of the concepts of adults the most resorted methods are :

- (a) Introspective method.
- (b) Learning method
- (c) Problem solving method.

Characteristics

In the early twenties Jean Piaget centered his attention on the study of thought processes. He has written some twenty books and a series of articles on children's concepts. He made use of clinical method which in a series is a combination of the observation and interview method. He made a comparative study of the concepts of children and adults. According to him a child's thinking is different from that of an adult, and his concepts 'pass through a series of rather closely defined stages each of which is logical for a particular age'. He points out that child's thinking is characterized by 'realism', 'animism' and 'artificialism'. By realism is meant that in children there is a confusion between sign and the thing signified. Children have a tendency to regard objects as living beings endowed with will. This type of fantasy expresses the existence of animism in children. A number of factors are associated with the formation of concepts.

Internal Factors

1. *Age* : Age plays important role in the attainment of concepts. The earlier concepts appearing in children relate to 'Objects'. 'Form' concepts are next to come and it is in the end that children start forming the

concepts pertaining to 'Numbers' In the initial stages the youngsters care only to acquire concepts relating to immediate environment. With increasing age they become interested in the objects belonging to the remote environment. The variety and appropriateness of the concepts also increase with the age.

2. *Intelligence* : The quality and the quantity of the formation and possession of concepts in children is a matter of the level of intelligence of the children. A child superior in intelligence possesses a large number of concepts and at the same time his concepts are characterized by more clarity, elaborateness and preciseness.

3. *Training and Experiences* : Training and experiences in a variety of situations are also determining factors in the attainment of concepts. More varied are the experiences and more specific is the training imparted the more is the richness of concepts.

4. *Socio-economic Status* : Socio-economic status is also important in the attainment of concepts. Those children who come from higher socio-economic status enjoy countless facilities over their counterparts, and as such are in possession of concepts representing the most recent and current achievements and notions in every sphere of life.

5. *The Language Mastery* : The mastery of the language and the extent of the appropriate words are the life of communication. Whether the concern is with object, form or number the degree of the mastery of vocabulary is vital to the formation and richness of concepts.

6. *Emotional Components* : Emotional stability saves the wastage of lot of energy and helps in piling up a stock of energy

which remains readily available for investment. One who is emotionally balanced stands better chances of being endowed with various concepts that are marked by clarity and preciseness.

7. *Motivation* : Motivation is responsible for striving in the right direction and also brightens the chances of achievement of the desired goals. Motivation energizes behaviour. Such a behaviour is marked by the force to strike and to face the obstacles and persistence of his efforts. This is specifically true if the self or ego-involvement is there. One who is motivated is richer in respect of the concepts. He has larger number of concepts as well as his concepts are finer and precise.

External Factors

The external factors which play an important role in concept formation are listed below :

1. *Nature of the Problem* : Reed's series of experiments brought the fact to the light that the rate of success was higher when children were instructed to discover the basis of grouping than when they were instructed only to discover the groups. The studies of Archer and others are indicative of the fact that irrelevant information is responsible for the lower level of achievement and performance.

2. *The Goal of Learner* : A clear vision of the goal is a strong source of motivation. The setting up of the goal and the levels of aspiration are the outcome of one's past experiences and his set in respect of the task in hand. The formation of concept is closely related to clear visibility of the goal aspired.

3. *The Materials Used* : Heidbreder relates conceptualization closely to perception of concrete materials. The experiments con-

ducted by him seem to establish the fact that the pictured material makes the concepts evolve more easily than if the material used is verbal in nature. The best way may perhaps be a scheme when abstract is alternated with concrete. This approach may prove more efficient and may yield better results.

4. *Manner of Presentation:* A systematic and orderly presentation affects the rate of concept formation. If the essential details are supplied to the learner he does well, than if he is faced with cluttered, confused and unnecessary attributes. Hovland and Weiss studied the development of the concepts of adjectives. The finding is, that the recognition of some non-adjectives assists a lot in the development of the concepts of adjectives. They also assert that the negative instances too play a part and may be basic in the development of many types of concepts.

5. *The Nature of Validation:* The youngsters look forward to adults for the development of nature of desirable and undesirable patterns of behaviour. The approbation by the adults assures the child that he is right. While the disapproval makes him realize that a modification, even a rejection may be necessary. The children constantly stand in need of suggestions from elders in many ways and on numerous occasions to test the appropriateness and validity of the concepts held by them.

6. *The Use of Concepts.* Practice alone does not make one perfect but it certainly leads along the way towards perfection. It may be that the concepts have been derived through induction, yet their thorough learning is a matter of practice and application in a variety of situations. In the initial stages of acquisition it may appear beneficial

to help the children understand the relationships and develop insights but latter on the reinforcement and the criteria of usefulness are decisive in determining the degree of performance and the variety and breadth of concepts

Behaviour

The process of formation of concepts have drawn the attention and made the psychologists keenly interested to make a thorough investigation in this realm. Piaget occupies unique position for his pioneer studies in the fields of concepts and thought processes. Many studies have been conducted to understand as to how the concepts are formed. Findings summarized by Vinacke, of the work done in this sphere :

1. The attainment of concepts is gradual. The concrete concepts appear before the abstract ones make their appearance. Further, the concepts pertaining to immediate environment appear first while those belonging to the realm of remote environment come next. So a hierarchy of concepts emerges which is gradual.

2 Some of the concepts may make their appearance spontaneously. They may not involve any conscious efforts on the part of the organiser. The children imitate many a things they happen to observe and thus learn and acquire, without awareness of a number of concepts

3. The consistent and inconsistent concepts may be attained and held at the same time. The initial stages are marked by confusing, irrelevant and inconsistent material. Later on through the process of scrutiny involving testing, verification modification, amalgamation and rejection of the concepts takes place. In highly desirable cases the inconsistent concepts are replaced by consistent ones.

4. The concepts are attained in some order. For example, acquiring the information about the objects is the easiest for the child. The tangible entity of the objects facilitates the formation of concepts about objects. The concept of form is next to come. The attainment of number concepts is the last, because numbers involve abstraction. So the general order of attainment is : object-form-number.

5. In case of children the more common sequence observed is . Perception-Abstraction-Generalization. Perception is basic whereas the process of abstraction serves as a link leading to generalization. Generalization itself is vital to the formation of a concept. In case of adults this sequence may not be observed because the adults have already developed and accumulated such data and experiences which may enable to ignore the following of this sequence rigidly

Teaching

It is remarked that concepts pervade most school learning as such in learning and teaching process they occupy the central position. Because of their high significance all efforts must be directed with a view to make improvement in the quality and quantity of concepts. The two basic prob-

lems which demand immediate attention are :

1. How to initiate and ensure a steady progress of concept formation in children ?
2. How to build up and enrich the realm of desirable concepts in children ?

In the initial stages the sequence, object-form-number may prove advantageous. As the same time one should remember that he has not to depend only on the verbal presentation of facts rather all the avenues should be explored to supplement these with concrete materials and experiences in the form of pictures and experimentation. The multisensory approach is always better as it has higher probability to bring about remarkable results, specially in case of younger children. An eye is always kept to be fixed on the development of broader and deeper concept. All the immediate plans and the curriculum should be so organized that it may be possible within a reasonable time to realize the ultimate aim, i.e., the enrichment of the world of concepts of the child. The 'cyclic approach' to the subject matter and the correlational method may go a long way in developing clearer concepts and comprehension of the existing relationships.

—80, Baatashi wall Gah, Aminabad,
Lucknow-220018

ADD TO YOUR KNOWLEDGE

Train up a child in the way he should go, and when he is old he will not depart from it.

--Proverbs 2.26

Visual Thinking and Education

ARUNIMA VATS

Most policy makers of primary and secondary education have doctors' degrees. The result is a selection process that eliminates intuitive thinkers from high positions in education. People who started out with a good intuitive feel for education often have it 'educated' out of them in the process of getting their doctorates

Several thousand years ago, the Eastern philosophical and educational systems realized the importance of thinking with images and also developed the techniques for silencing verbal thoughts, thereby tapping non-verbal consciousness. In China, this technique was known as Tao, in India as Yoga and in Japan as Zen. But with the passage of time as education became curriculum bound and rigid in its approach the emphasis shifted from images to words and in the process the education system, society and human existence as such has been deprived of many constructive visual ideas inspite of the information that visual thinking is as important as verbal and it has exercised almost undisputed primacy in surveying and recording the information for human cognitive processing.

Way back in 1883 Galton expressed "I believe that a serious study of the best

method of developing and utilising the faculty of visual thinking, without prejudice to the practice of abstract thought in symbols is one of the pressing desiderata in the yet uninformed science of education". This holds true even today. In this word oriented world, educators are overlooking the fact that children have other kinds of thought besides verbal thoughts. Thinking afterall consists of manipulation and rearrangements of 'memory images'.

It has of course now become a cliche to say that scientific discovery is not always a matter of methodical, logical construction; intuitive leaps from one point to another, flashes of insight, the perception of relationships between things previously thought of as separate—all these processes which have been commonly associated with imaginative ability are now commonly accepted as normal characteristics of scientific thought

and discovery A whole mythology has developed some of the most noteworthy scientific discoveries made by imaginative or dream processes. Life histories of various prominent persons have shown how important the visual thinking is. For example, Einstein reported that he "rarely thought in words at all". And that his thinking processes were represented to his consciousness by "more or less clear images of visual and some of muscular type". Kekule told his colleagues that he glimpsed the ring like structure of the benzene molecule in a dream of a snake biting its own tail The importance of visual thinking is highlighted by Max Planck, the father of quantum theory when he wrote in his autobiography that the creative scientist must have " a vivid intuitive imagination for new ideas not generated by deduction but by artistically creative imagination". Even Aristotle, the founder of formal logic felt that visual thinking was necessary for thought. According to Rudolph Arnheim visual imagery is essential to all creative thinking. Verbal and mathematical thinking, he suggested, is valuable for mental operations, involving logical linear step reasoning but is totally inadequate for the metaphoric, wholistic, transformational operations generally associated with the initial "insight" stages of creative thinking. The act of genius requires a real partnership of intuition and logic involving right and left brain hemispheres respectively. Recent neuro-physiol advances support this contention.

It has been indicated by various studies that children have greater potentialities for strong and frequent visual imagery and this affects their thinking greatly. Every child can imagine Imagining is a part of human

experiences and education can try to influence imagination both directly and indirectly because human visual thinking system is very flexible Behaviourists and educationists working with young children in the area of cognition indicate that imagery represents much more efficient storage and in a classroom situation, learning can be greatly improved if verbal material is reinforced by visualizing. The use of techniques like fantasy play and socio-dramatic play in the classroom can lead to significant improvements in verbal intelligence, mathematical readiness, perspective taking concentration, complexity of play, conversation abilities, imagination, originality and group problem solving (Smith, 1983). These scientists treat the visual imagery as a kind of behaviour and raise the possibility that visualizing can be taught (Catania, 1979) and therefore all children may be encouraged to have clearer and more efficient thinking by using various instructional strategies

But inspite of such a realization education puts too much emphasis on words This may be because while developing educational theory and curricula too much emphasis is put on words. It is, therefore, not surprising that the visual side of the knowledge has not been given much importance. It is a matter of common observation that as a child progresses from lower classes to upper classes, there is a gradual diminishing of creativity and intuition as his classwork takes away his fresh originality and he becomes more logical and stereotyped. Non-verbal thinking is impossible to ignore in the lower grades because child's language ability is yet to develop completely. The habits of creative thinking are so basic and important that they must be practised from

childhood. The use of visual thinking is associated with a greater sense of confidence in the user, even when it is not associated with a greater degree of accuracy in what is recalled (*Sheehan, 1972*). It is associated with artistic, sensitive and creative self-concept. With little help from schools students may be able to pick up naturally the ability to visualize. Elementary school children can easily approach art and movement non-verbally, the problem is simply to keep this natural ability alive. In a classroom where verbal material is reinforced with visuals, learning can be enhanced.

Almost all school subjects can help in the development of visual thinking provided they are developed in a way which can claim to develop imagination. For example, carefully and imaginatively planned curriculum in science and mathematics can help in developing scientific imagination by providing freedom. Freedom to imagine is important otherwise the students will feel inhibited for scientific kind of imaginative discovery. History may claim rather to develop human understanding through possibly imaginative experiences of the past emotional experiences. This has been indicated by various researches that encouraging this kind of visual thinking provides a kind of emotional satisfaction to the individual to think innovatively. But the present educational contents neglect the emotional aspects. It has been rightly pointed out that a curriculum which provides only for intellectual development is unbalanced but then they merely prescribe subjects which are excellent enough in their way but which do not necessarily do anything further for emotional development as distinct from emotional expression (*Sutherland, 1971*). Some of the techniques used in our traditional system of

education could be used to give students a taste of pure and productive visual thinking. If the school curriculum includes a rich amount of dance, music, sports and yoga, it would provide an excellent antidote for the overdose of verbal thinking in the classroom today because these subjects put emphasis on total feeling which involves the whole body. Certain new methods to teach language have been developed. For example, the Lozanow method of foreign language instruction developed in Bulgaria combines imagining with relaxation exercises and positive suggestion to produce a spectacular acceleration of learning. Such an approach while giving training for verbal abilities development provides scope for the development of imagination as well. Visual aids available as a result of technological advancement can be used in the classroom to supplement pure verbal presentation. Books filled with pictures and diagrams speak to both sides of the brain. Animation in movies and television can dramatically help students visualise difficult concepts.

But unfortunately there is no other field as degree conscious as education and the basic thinking of the entire educational establishment is word oriented, be it the area of elementary education, higher education or teacher education. The decadence in the field of higher education is the natural result of ignoring the 'visual' ability of the individual (*Sutherland, 1971; Glusser, 1982; Blakeslee, 1980*). A sort of academic dream world has been created in which purely left brained thinkers admire each others 'scholarliness'. Many students who earn their Ph. Ds become so habitually 'left-brained' that they are unable to do anything but become 'scholars' themselves. The system thus feeds itself and becomes

more and more scholarly and less and less intuitive.

This situation needs serious considerations by educators, planners and administrators. Teacher education needs to be oriented according to changing educational goals. It is essential that teacher training curriculum should be so arranged that it emphasizes the importance of encouraging visual thinking in young children. To understand this teachers must be made aware of their own visual consciousness and to respect intuition and visual thinking of their students. They must realize that it will not be always beneficial to rely exclusively on words or formulas in their lectures. Both gestures and pictures are powerful ways to develop imaginative power in the students. This will definitely help in developing the creative abilities of all pupils whether in imaginative creation or intellectual or practical creation. Aisenson (1983) discusses that imagery can play double role as revealing both the discovery of new aspects of the external world and

the revelation of unknown aspects of the self. Imagery is used for explorative purposes as well as for production of insight and growth in systems. Images as symbols constitute intermediary objects that permit a comparatively anxiety free confrontation with one self and a means by which to envision new forms of behaviour. Symbols also give access to psychical areas that are out of reach of a conceptual approach.

There, in some ways education has to be much more concerned with the general experience of the child than with developing detailed exercise. It should attempt at encouraging the use of imagination in ways which parents or teachers after due thought consider desirable. It should also provide scope for original work and flourishing of unusual individual talent by encouraging imagination. Such an approach would help the students in developing the ability to use imagination in creative problem solving as well as planning for future constructively and innovatively.

NCERT, New Delhi-110016

ADD TO YOUR KNOWLEDGE

"National education is the privilege of free men. Only free men have common interest and are really united by law."

—J. J. Rousseau

School Adjustment : Part of Learning Milieu

M. P. BIASIN

The school is the most important setting in the student's social world. The way this system works affects the adjustment of every student in it. Teachers and administrators responsible for school adjustment need to manipulate the right balance between forces concerning for the intellectual development of each student and his social and emotional development.

In the competitive school life, almost every student is subjected to encounter a steady stress of struggle to meet school standards. Most students adapt successfully but many learn failure and non-adaptive behaviour instead. In general, a student's pattern of adjustment can be judged by whether he has the habit of facing school problems squarely and being rational and persistent in trying to solve them or is characterised mostly by retreat or avoidance. School adjustment refers to the process by which the student varies his behaviour in response to stress inducing demands and expectancies of the school world. Adequate adjustment is manifested by behaviour that helps to solve school problems or achieve control over school situations and thereby reduce anxiety. On the contrary, inadequate adjustment results from behaviour that brings the student into conflict with his

school environment or hinders his ability to cope with school stress. In fact, the student's school adjustment has an intimate influence on his school learning. Certainly those who guide the school learnings of the students must consider school adjustment as an integral part of the learning milieu.

Adjustment to School Stress

In making adjustments, the students respond to stress arousing areas of school adjustment—school atmosphere, curriculum, teaching methods, personality characteristics of teachers and administrators and academic achievement. Different students make different adjustments because adjustment appears to be a function of the interaction between the characteristics of the demand itself: intensity, multiplicity and duration of stress; importance of the threatened needs or goals; degree of sudden-

ness and unfamiliarity of the challenge and the characteristics of the students under pressure: general competence, frame of reference, emotional make-up and involvement and stress tolerance. A student who wants to be recognised and approved by his teacher may adjust to teacher's criticism of his school work, to his self-esteem in a positive way and exerts to study more in future. Another student may blame his poor work on poor instruction of the teacher. This response may reduce his anxiety temporarily but it will not win any approval from his teacher to improve his school work.

The quality of adjustment varies with the severity of the stress situation that provokes it, but the response one makes to the stress situation provides clues to his personality adjustment. A mild stress can be helpful to the student because it will energise him to focus on what is more important. A highly emotional response, however, can interfere with clear thinking. The teacher must try to determine the level of stress at which the student begins to have difficulty. Generally speaking, a student who confronts any obstacle in school situation has three possible choices of behaviour. He may succeed in overcoming or solving the problem; he may fail to do so and then withdraw from the field or he may engage in norm violating nonadjustive behaviour to seek some face-saving explanation. A well adjusted student is one who is able to adapt to a changing school milieu, who perceives school reality accurately, manages school stress, shows effective school performance and possesses feelings of adequacy and well-being in the school set-up.

Factors

Many of the adjustment problems of the students are related to school work. Re-

peated success in coping with the academic demands of the school is strengthening; it tends to give the student greater confidence and competence to solve the next higher problems. Repeated failure may cause him to seek some negative and non-integrative behaviour. Social isolation in the school environment is associated with maladaptive behaviour whereas, better social life is carried over into the academic realm. Educators must direct more effort towards creating the opportunity for all students to meet academic expectancies and achieve meaningful social relationships.

The influence that anxiety exerts on school work has its clear and consistent disruptive and distracting effects on learning ability. The student with limited ability for school work has trouble in finding the correct intellectual response to a problem and is forced to fall back on an emotional solution instead. The primary reason for students who drop out of school is not any specific learning failure but a broad educational disability resulting in increased anxiety and stress. To the student, dropping out is a positive action; to the school, it is a turning away and an escape.

Lack of ability for school subjects is not in itself an emotional handicap, but the stress of competing with academically superior students may be. The self-concept of the slow learner can be strengthened in subjects in which he can succeed. It is not suggested that the academically superior student is totally immune to severe anxiety or stress. His strong academic potential may encourage his parents and teachers to increase their expectations for him far beyond he is able or willing to achieve easily. Neither intellectual brilliance nor mental deficiency is in itself a

causal factor in behavioural disorders but the school milieu in which these ability levels operate.

The attitudes and values the student has internalised towards education and the school as an institution affect his adjustment in the school. Parental expectations of a child's school performance being similar to the values of the school result in adaptive and successful school adjustment. The lower class parents, however, have few ambitions for their children and are indifferent to their success or failure at school. The disadvantaged student is not likely to be positive in his attitudes towards school practices and requirements. Until disadvantaged students encounter someone who can inspire in them hope and faith in themselves, there is danger of becoming apathetic.

There is a growing belief that the attitudes and values of teachers and administrators have a telling effect on the student's capacity to deal with the situations that confront him in school. Positive perceptions of the teachers' feelings are significantly related to students more desirable school adjustment. Upper and middle class students feel that their teachers perceive them more favourable than what the lower class students feel of their teachers' perceptions of them. A lack of trust appears as the most pervasive attitude of disadvantaged student in school. If the process of education is to be enjoyable for all students, the teachers must look at themselves. Teaching tends to attract those who are inclined to be sympathetic, tolerant and understanding.

Identifying Problems

There has always been a strong tendency among teachers to assume that a student who is quiet, obedient and passive in the

classroom has satisfactory school adjustment. This is true if the student is also making reasonable progress in school work and has a circle of a few friends atleast. But the withdrawn student who is a loner and also a poorer performer in school is likely to have at least a beginning adjustment problem. The withdrawn and socially isolated student is less visible than the active, disruptive student. Yet the tendency to withdraw from competition and social interaction is predictive of later adjustment problems. By contrast with withdrawn behaviour, aggressive behaviour towards peers, teachers or school administrators is quickly noticed. Aggression causes interruption and disturbances in the classroom which can be annoying to the teachers and students alike. Yet there must be a clear evidence that the student's aggressive behaviour is the chief reason for his poor academic work.

Teachers Role

The school atmosphere should function as a source of great stimulation for maximal learning and healthy social interaction. The teacher and the entire system can rearrange the learning milieu in such a way that students are motivated to respond constructively to stress and change. In fact, success in school can do much to help a student to cope more with anxiety. It should be possible for every student to meet most of his school requirements and also to exercise individual control and judgment. How the teacher responds to the needs, values and attitudes of the students determines the atmosphere of the school. The primary basis for evaluating a school should be whether the students find it a satisfactory place to be.

SAS Instruments

School learning planned in terms of school adjustment makes measurable differences in the rate and direction of students learning and adaptive behaviour. Effective teachers characteristically seek to relate school adjustment with learning milieu. As such they need some instruments to measure school adjustment. School adjustment scale (SAS) may be developed on the following lines :

School adjustment scale covering five main areas of school adjustment—total school atmosphere, curriculum, teaching methods, personality characteristics of the teachers and administrators and academic

achievement may be of statement form. Each item will carry four different responses arranged in order of numerical values 4,3,2 and 1 indicating highly adequate adjustment, adequate adjustment, inadequate adjustment and highly inadequate adjustment. The student is required to cross one of the four different responses that appeals him the most. The test-retest reliability of SAS indicates its trustworthiness and its content validity is determined through group interview programmes with senior teachers and headmasters.

—Principal, RCE, Phagwara,
Satnampura-144402

ADD TO YOUR KNOWLEDGE

Aristotle was asked how much educated men were superior to the uneducated .
“As much,” said he, “as the living are to the dead.”

Motherse in Nursery and Kindergarten

RANJIT MUKHERJEE

A mother never corrects the child. The child is impressed upon constantly and gradually by the correct use of words and sentences which is being repeatedly modelled by the mother for him. The child corrects his utterances after the mother through repetition and approval of the mother. And finally he develops his own grammar of talking.

Here is one of the innocent legends that survived World War II. A man was held up by the British Army. The charge against him was espionage. Informations confirmed that he was a German by blood. The charge couldn't be established. He behaved British by all means. Finally he had to pass the language test. Here too he fared superbly well. He spoke English better even than the British officers.

One of the officers perhaps had something more or less than the normals. He ordered one of his men to bring in a British infant. It was done. The prisoner was asked to have discourse with the kid. He couldn't.. he was caught.

The credibility of the story is optional. But, one must not have missed the truth underlying the detection. The German could speak English as good as any adult native of England; yet he failed to do so with a native English kid.

This is an obvious truth about almost all the second language learner. One may acquire the exact competence and the appropriate intuition of the adult native in a second language, but he can hardly be childish in that. For, child language is always different from the adult language. It takes a child at least five/six years before he can make his utterances truly exportable to the adult community. Prior to this he speaks in his own. In case of second language learning the operation starts much later. The ability to communicate depends on the degree and content of exposure and immersion he gets.

The child's attempt to learn and develop competence in the first language is aided primarily by the linguistic environment that he finds around him. The talk he receives from the immediate environment is from his mother or from his parents. This Mother Talk or Parent Talk is normally labelled as Motherse.

The motherse is syntactically less complex. The incidence of subordinate clauses is very low. It keeps room for a large amount of redundancy in speech. Redundancy is seen mostly in the repetition of utterances of constituents or of entire utterances. The range of vocabulary is very limited. A special lexicon of baby talk forms the universe of discourse. The register consists of such things as food, toys, animals, parts of human body and the like that are found in the world of direct association of the child. It includes lot of tutorial questions from the mother following child statement. The phonology is also simplified. For example, 'choo choo' stands for train, 'tummy' for stomach, 'bow bow' for dog, 'mew mew' for cat, 'shoo shoo' for pressure cooker and so on.

The world of the child is packed with coos, chuckles, babbles, mutters. The mother has to be an active partner of the child in this world of apparently meaningless sounds. Imagine a child with his motherse—how warm, how intimate, how cosy—how childish, isn't he? For heaven's sake don't call it nonsense. I don't know how you will react to your wife or to your husband talking motherse to hugging you but in the proper situation motherse is the precondition for the child to enter the accepted adult language behaviour.

Now a word for the mothers. Do you know why you simplify your talk while you talk to your child? The answer is that it is the only way by which you can talk to your child and let the child talk to you. Consciously or unconsciously, you keep adjusting your own speech pattern to maintain the child's responsiveness at optimal levels.

At times you are tired and disgusted, aren't you? Things seem to be sickening,

don't they? At these dire hours, to use a cliche, please don't rebuke or scold your child—who is often the unfortunate and helpless recipient of the let-loose-adult-anger-in adult words. Even if you fail to be in your cool please be in your motherse. Otherwise the motivation of the child, leave the other impacts, would incur unmeasurable losses.

Now a word for the teachers in the nursery/kindergarten. You are the mother at school. You are supposed to take care of the transformation taking place in the psyche of the child from homing to schooling as he enters and begins to live in the school society. You are there fore supposed to take care of his motherse also so dear to him. Your motherse is care taker language. It takes off motherse and lands on adult speech.

The teachers in the nursery/kindergarten are not only teaching the first language but also the second language in Indian situation, English for instance. The child-psychologists and the psycholinguists observe that the motherse and the caretaker language have positive effects on the child's language development. Snow, Cherry, Furrow, Cazden, Benedict are big names in this province. However, the role of motherse has got high bearing in learning a second language also.

It is quite absurd that in a second language learning situation the teacher would talk to a child the way a native mother would have with her child. The Indian teachers should be wise not to attempt that as regards English. What we mean is that the features of motherse can be applied in teaching a second language. These are simple short utterances, repetition, prodding, prompting, gestures, use of

interrogatives and imperatives, in the target language. More high frequency vocabulary and less idiomatic usages are to form the register. The child learning a second language faces less difficulty if the teacher exploits the learner's knowledge of the immediate world around him. Familiar topics will not only facilitate comprehension but also motivate the learner to talk in that language.

Lastly a word for the grammatical teachers. Please don't go to teach in the nursery/kindergarten, specially for English as a second language. For, you have learnt how to correct rigorously. You should

correct and scrutinise public examination papers. You are not mothers or caretakers, you can never be. You have done enough of spoiling the child's motivation towards learning a language. Please don't do any more!

You are not ready to believe that language development in the child 'can take place only when the learner is motivated by powerful communicative intent', (Cazaden, 1977) not by any powerful intent of the teacher to correct the child

*Asstt. Prof. of English, Govt. College
of Education, Agartala, Tripura-799006*

ADD TO YOUR KNOWLEDGE

"The true purpose of education is to cherish and unfold the seed of immortality already sown within us; to develop to their fullest extent, the capacities of every kind with which the God who made us has endowed us."

—Anna Jameson

Teacher Absenteeism in Primary Schools

L.S. SINHA

The desirability of evolving a new education policy has rightly been emphasised and perhaps at a very opportune moment. The educational standards throughout the country are at a low ebb and it is high time that the stock-taking should be done so that a National endeavour may be made to remedy the situation.

The scenario of the primary education, particularly in rural areas, has been for long a dismal one. Already our primary schools are plagued with lack of suitable buildings, the basic infrastructure by way of furniture and teaching aids etc. and the ill-equipped, indifferent teaching community. The surveys conducted by the NCERT and others reveal that 9% of the nation's schools have no buildings and the overall position is that 40% of them have no pucca structure. Of the 5.04 lakh primary schools in existence today, 39.72% have no black-boards and 59.50% are without drinking water facilities.

The picture in regard to the availability of teachers can be guessed from the fact that according to the the Fourth All India Educational Survey, 2937 schools had no teachers posted at them and (6493) were single-teacher schools. The solitary teacher manning

the school was required to engage 3 to 4 classes. As observed in para 3.7 of the policy document of the Ministry of Education, Government of India, titled 'Challenge of Education'—it is also clear that these teachers cannot look after the diverse interests and variety of educational needs of pupils'.

The magnitude of the problem can be better imagined when we look at it in the back-drop of teacher-absenteeism which characterises a vast majority of our schools particularly in the Northern belt. The policy document notes, 'There are surveys which indicate that many schools remain without any teacher for varying periods of time and some teachers are not above sub-contracting teaching work to others who are not qualified for this work either by training or by experience'. The policy document has done well frankly to admit how these evils

are paralysing our entire education system overtly and covertly. In doing so the attention of all the government and non-government agencies would be focussed to this acute problem and there might be a general awakening towards improving the situation. Certain measures can, however, be listed which are likely to contribute in minimizing the evil of absenteeism :

1. In the first instance a psychological climate conducive to the smooth functioning of the schools can be created by providing the much needed physical and other facilities. By eliminating or minimizing wastages in educational expenses (as also elsewhere) and by augmenting the already meagre allocation in a big way, comprehensive plan for constructing suitable school buildings can be taken up. Encouragements may be provided to local communities to come forward to donate land and part of the construction cost. Presently the bulk of the allocation (about 95%) is taken away by salaries which leaves practically nothing for buildings, equipments and other amenities. This highly unsatisfactory imbalance has to be corrected by framing rules that would make it obligatory to spend at least 25% of the budgetary allocation on non-salary essential items. The amenities thus provided would very likely generate a more conducive atmosphere for the teachers to be attracted to attend schools.

2. In order to further boost the already depleted morale of the teachers it is necessary that sufficient promotional avenues should be created. The present position is that a vast majority of teachers stagnate in the same post throughout their career without even hoping to get a single lift. Possibilities of a few promotions that exist can hardly make a dent in the system. Needless

to say that opportunities ought to exist in sufficient measure for the teachers to move up in the ladder in accordance with their academic achievements and professional competence. Provision should be made that efficiency and commitment to work rather than simple seniority constitutes the basis for moving up higher. It is also necessary that a mechanism should be worked out to ensure objectivity in the assessment of the teachers' performance over the years.

3. Just as there is almost complete stagnation at the primary level of teachers, the supervisory staff is no less plagued with the malady. There are instances in some states where the inspecting staff have worked for 30 years and more at a stretch and for no apparent reasons denied even a single promotion in the entire span of their career. This situation is highly demoralizing and unless effective measures are taken immediately to correct this unhappy state of affairs, elementary education is going to be doomed even further. Even the teachers of the training institutions who are supposed to play a vital role in the preparation of the nation-builders display a lamentable lack of knowledge of desirable educational principles and developments in the field of education. They too are subject to the same stagnating factors as their colleagues performing supervisory roles. Building up the morale of these educators and educational administrators is of utmost importance in bringing about educational improvement.

4. Along with creating avenues for promotion and facilities for inservice courses, it is equally important to streamline the administrative machinery as it exists presently. There is no reason why things may be allowed to drift the way they have been doing so far. The recalcitrant incumbents

do require to be dealt with more effectively by those who are responsible for exercising control in more responsible positions. The primary teacher sitting at home or a supervisory staff blissfully whiling away his time oblivious of what is happening to the schools in their charge, is an intolerable situation.

5. Then there are a large number of single-teacher schools and even no-teacher schools. The position varies from state to state. Bihar and Madhya Pradesh have more than 17000 and 25000 single-teacher schools and a state like Kerala has only 24 such schools. Whereas in Kerala and Punjab there were hardly any schools where a teacher was not posted, in Uttar Pradesh, Bihar and Madhya Pradesh no-teacher schools were 600, 497 and 411 respectively (Fourth survey). Teacher-absenteeism in such schools would mean that they are practically defunct. It would thus appear that there is a need to open two or more teacher schools instead of single-teacher school. Immediate steps are required to be taken to provide teachers where the postings have not been done.

6. Very often the teachers in the rural areas are from the farming communities and as such they tend to neglect the teaching work in order to attend to the needs of their farms. One way to get over this difficulty, as suggested in the "Challenge of Education", is to recruit teachers (as far as possible) from the same community where the school is located. In the absence of suitable teachers from the same community care may have to be exercised in recruiting them from nearby areas.

7. Management-wise approximately 94% of the primary schools, are under the administrative control of either the government or local bodies and as such do not have boards of management in the sense we

know them i.e. they do not have any local control or supervision. Whereas urban schools may be within easy reach of the administrative or supervisory staff, the vast majority of schools which fall under the rural sector, virtually function in isolation. If responsible educated members of the community are inducted in the boards of management which may be constituted to exercise a minimal control and supervision over each or a group of two or three schools, the absenteeism problem may be effectively tackled. Such a system may also generate a measure of interest in the community which may prove vital to the smooth functioning of the schools.

8. If the policy of recruiting teachers from the local communities proves feasible the need for providing residential accommodation would be considerably reduced. Still there is need, and would likely to remain so far long, to make available to teachers and lady-teachers in particular, residential facilities. Such a measure too is calculated to effect appreciable reduction in teacher-absenteeism.

9. Inservice training facilities as available at present is too meagre to make any impact on the efficiency and morale of the 5 lakh and odd teachers currently engaged in providing primary education to the country's 69156038 (Fourth Survey, 1978) children of whom a little over 70% are in rural areas. A suitable and effective arrangement whereby every teacher may undergo a refresher course once in 4 years is a must. One or two members of the supervisory staff may be specifically deputed for the purpose at the district headquarters where the courses may be organized.

It is estimated that there may be 12 to 15 hundred elementary schools in each

district which require the benefit of inservice courses. These courses should be very carefully designed and the resource persons and course-directors should be experts in the field of elementary education, familiar with recent trends and developments. A permanent Institute for Inservice Courses should be set up in each state or a group of two or three states (preferably on the model of one in the GDR) specialising in this area and preparing resource persons and designing courses both for Elementary and Secondary levels. When the teachers

undergo short courses at regular intervals they are likely to develop a healthier interest in their profession.

It would thus be seen that an integrated approach has to be adopted in dealing with multi-faceted problems the country is beset with. In making a concerted effort in minimising teacher-absenteeism the problem is to be attacked on many fronts and the resultant gains would also be rewarding in ways more than one.

C-2442, Indira Nagar Lucknow

ADD TO YOUR KNOWLEDGE

"Today educational levels are replacing class structures as the significant vertical stratification of society Possibly—and this may be the hardest task of the next fifty years—we may even discover how to preserve and enhance the self-respect of those that fall behind in the education race."

—Max Ways

Mass Media for Promotion of Sports and Physical Education

P.D. SHARMA

The promotion of sports and physical education is no longer a matter of dispute. Their importance has been recognised at international level by all the countries of the world. Today sports and physical education are considered as international disciplines because they develop 'international understanding' and 'Universal brotherhood'. In the present politically conflicting times the sports is also considered as one of the major adhesive forces for developing 'world peace'.

The importance of physical education and sports as a fundamental human right has already been recognised by the world body, the United Nations. The 'International Charter of Physical Education and Sports', adopted on 21st November, 1978 by the United Nations Educational, Scientific and Cultural Organization (UNESCO) clearly reflects the great importance attached by the International body to physical education and sports as an integral part of general education. The Charter further stresses that the promotion of physical education and sports from pre-school age to old age should be treated as one of the fundamental human rights by the national governments.

Role of Mass Media

It is a well-established fact that the

mass media can play an effective role in promoting sports, physical education and health consciousness and at the same time inculcating the habit of physical exercise in daily life. Considering the sports and physical education which contribute to the all round development of personality, the backing of the mass media for the propagation of games and sports is absolutely indispensable. The mass media can also help in improving sports standards by arranging discussions with knowledgeable persons and experts on the finer points and different aspects of sports and games popular in the country and at the same time educating the common people about the latest techniques and rules of the games. The important mass media agencies are :

1. Press : It is the most powerful mass

media for educating public and creating healthy atmosphere for the games and sports in the country. Newspapers and Sports Journals through their editorials, news reports and comments can highlight promising sportsmen and sportswomen of the country and can also see that only such sportsmen and teams are sent abroad which can bring credit to the country and improve the country's image in the sports world.

2. *Radio and Television* : The radio and television along with entertainment can also educate the common man through sports news, running commentaries, interviews, excerpts from international matches and similar other programmes. The time devoted for the sports on radio and TV is too less, i.e. only 1.5% of the total hours of broadcast, and it should be increased. Similarly the time allocated for the sports should be equitably distributed between different disciplines popular in the country. At present, the major portion (more than 50%) of this time is consumed by Cricket only.

3 *Sports, Films and Documentaries* : The Films Division of the Information and Broadcasting Ministry does not produce enough number of sports documentaries. For example, during the span from 1949 to 1972, a total number of 1889 documentaries were produced and released for public by the Films Division. Out of these only 16 i.e. barely 0.84% sports documentaries were produced.

Modern Concepts

Modern physical education recognizes its responsibility for man's total development i.e. physical, mental, emotional and intellectual. Similarly games are a popular pastime for the young and the old, for boys

and girls and for men and women. They offer an opportunity for all to obtain exercise, fun and relaxation. Thus, many times it is said that "play is nature's hand on the back of the child pushing him to educate himself" or "the skill-learning years are the great golden decade" or "to move is to learn and to learn is to move" and so forth. Further, through physical education and sports the teacher has an opportunity to nurture health, happiness, character and the democratic spirit and thus enrich the lives of children. Hence, the promotion of sports and physical education is the moral and social responsibility of each nation.

Suggestions

Lastly, I will conclude this article by depicting following suggestions to promote physical education and sports in our country :

1. As a first step, it is essential to correct the imbalance between cricket news and rest of the sports news, particularly Indian games like Kabaddi, Kho-Kho, Wrestling, etc., by devoting more space to the latter.
2. The radio and TV should recognize sports and physical education as a major subject of broadcast and should devote more time for all major sports events- Indian or foreign.
3. Efforts should be made to encourage the growth of sports periodicals in regional languages so that sports may reach to grassroot level.
4. Central and state governments should have their independent sports periodicals. At present, there is no such periodical published by the Central government or the state governments.

5. Mass media should popularize the programmes like 'Run for health' and 'Sports for all', so as to develop sports and health consciousness in a common man.
 6. The Films Division of the Information and Broadcasting Ministry which produces documentary films on various subjects of National interest should earmark about 10 to 15 per cent of its funds for producing films and documentaries on sports and physical education.
 7. Apart from the films produced by the Films Division, the National Institute of Sports, Patiala and Laxmibai National College of Physical Education, Gwalior should start 'Films Distributing Centre', so as to distribute films on physical education, sports and games both for training and entertainment purposes.
 8. Sports is also one of the factors solidifying National integration and developing National character which are the most
- urgent needs of the present day Indian society. So, sports and physical education should form an integral part of life-long education in the overall educational system of our country
9. Finally, we should keep in mind that "physical education and sports can help promote a happier and a more peaceful world by instilling a spirit of fair play in every child, helping in the development of healthy and physically fit individuals, developing an understanding of the worthy use of leisure time, fostering social equality, furthering democratic procedures, promoting the belief in the dignity of man and developing an appreciation of the simpler things, as against the collection of great possessions and material wealth".

Lecturer : C.N. Vyayam

*Vidya Bhavan
Ambawadi, Ellis-Bridge,
Ahmedabad 380006*

ADD TO YOUR KNOWLEDGE

"A Good teacher in a basic school must be able to help the pupils to learn through work and at the same time to produce articles which could be consumed by the society."

-- Shriman Narayan

NBT's Gift to Preschoolers

R. MURALIDHARAN (MRS.)

Diwali	— <i>Ravi Paranjpeye</i>
Procession (1 to 10)	— <i>Mickey Patel</i>
Homes	— <i>Indo-German collaboration</i>
Our Tree	— <i>Pranab and Smita Chakravarthy</i>
We Indians	— <i>Mehru Wadia</i>
Publishers	— <i>National Book Trust</i>

The National Book Trust (NBT) has recently published a series of delightful picture books for young children under its Nehru Bal Pustakalaya Scheme. "Diwali" by Ravi Paranjpeye is a feast of colour with lights, sweets, crackers and new clothes — a book every preschooler will love to gaze at. "Procession" of Mickey Patel uses a very innovative approach in introducing numbers to young children by depicting them through various scenes from a typical North Indian marriage procession — one beautiful horse, the dashing bridegroom and his little escort making a two-some, three enormous drums alongwith colourful drummers and so on upto ten delightful little urchins running after the procession. "Homes" which is a combined effort by several illustrators shows variety of homes that human beings, animals, birds and insects have. The smiling frog under the mushroom, the little worm

peeping out of the apple, the ferocious tiger in the bush or the little bird peeping out of the grandfather's beard is really a treat for every one. All these three books have no text and the story is told through illustrations only (A little preschooler once said that "the black shapes" are for those who do not know how to read pictures)

"Our Tree" by Pranab and Smita Chakravarthy tells the story of a tree, emphasising how the tree helps the other living beings by offering fruits and flowers, letting other animals make their homes on it or allowing children to fix their swings from its branches. The authors use two or three words to emphasise their points. The total effect is very pleasing and children will certainly absorb the message effortlessly.

"We Indians" by Mehru Wadia is a useful book for both preschool and early primary school children. As far as the little

ones are concerned, it is a book showing children having different names, wearing different dresses and doing different activities. For the older children, it serves the purpose of showing them the different facets of India, the different language groups, their dresses, customs etc, ultimately leading to the concept that we are all Indians—a delightful presentation indeed.

The books are done in multi-colour and in good quality paper which make them

attractive and appealing to little children. It is recommended that every school for young children and every home that can afford to buy them should go in for a set of these books for their children. Each book costs Rs 5 each. They are available in both Hindi and English form in the National Book Trust, India, A-5, Green Park, New Delhi-110016

DPSEE, NCERT, New Delhi.

ADD TO YOUR KNOWLEDGE

“At the desk where I sit I have learned one great truth. The answer for all our national problems—the answer for all the problems of the world comes to a simple word. That word is education”.

—Lyndon B Johnson

India Focal theme of Frankfurt Book Fair

'India—Change in Continuity' is the focal theme for the world's most prestigious book-exposition, Frankfurt Book Fair, which is scheduled to be held from October 9 to 14 this year. It is for the first time that a focal theme is going to be dedicated to a country. This event is an attempt to focus worldwide attention on the many still unknown streams of Indian literature.

Frankfurt Book Fair is considered the most important trade event of the international book market and is rightly called 'the pulsating centre of the world of book'.

Addressing a press conference in New Delhi on January 8 at the end of his six-week promotional tour of India aimed at highlighting and coordinating practical aspects of Indian participation at the Fair, Mr. Peter Weidhaas, Director of the Frankfurt Book Fair, said that participation in this Fair will be momentous step in the direction of closer contact between publishers from the West and Indian book trade. It is hoped that it would promote greater cultural understanding between people of the world.

Dr. S S Shashi, Director of Publications Division of the Ministry of Information and Broadcasting which besides being an important publicity media has emerged

over the years as the largest bureau of publications and marketing of Government publications, said that the Publications Division proposed to participate in the Fair in a big way.

Mr. Weidhaas also had talks with officials from the National Book Trust, Ministry of Human Resource Development (Department of Culture), Ministry of External Affairs, writers, representatives from the Indian publishing trade and cultural institutes and discussed with them the possibilities of increased cooperation both in terms of the worldwide publicity it receives from the media and the commercial potential of the Book Fair, to the mutual long-term advantage to peoples of the two countries.

Among the main features of the forthcoming focal theme 'India—Change in Continuity' will be two main exhibitions—namely, "Books Printed and Published in India" and "Books on India". The first exhibition will be an assortment of 5,000 titles, published in different languages of India. The second exhibition will likewise consist of 5,000 titles relating to India—past and present—published abroad. To ensure the representation of cross-section of Indian writers in various languages, a

elect band of 20 Indian authors will be invited from India as guests of the Frankfurt Book Fair, to take part in a symposium on Indian literature to be held in the week before the start of the Fair. The five and a half days will be packed with debates and discussions amongst German authors and publishers and their Indian counterparts. A weeklong celebration consisting of Indian film shows, dance and music programmes is also proposed to be organised to impart a dash of Indianness to the atmosphere at the Book Fair.

Last year the Frankfurt Book Fair attracted approximately 6,500 publishing houses from all over the world—right from Albania to Zaire. Around 80 countries participated. Over 300,000 publications were put on show at the fair.

Work on two exhibitions "Books Printed and Published in India" and "Books on India" was started in late 1985 itself. The exhibition would cover social sciences and humanities, natural sciences, medicine, engineering and technology, economics, literature, arts, books for children and young people and general and reference works and is sure to go down as a momentous event in the annals of Indian book publishing and marketing.

Five hundred students selected for residential school

Five hundred students have been selected for award of scholarships 1985-86 under the Government of India scheme of scholarships in approved residential secondary schools.

Out of these 500 candidates 113 belong to scheduled castes and scheduled tribes. The selection has been made on the basis of two competitive examination viz. the preliminary examination conducted by the States/Union Territories, and the final examination conducted by the Central Board of Secondary Education in September 1985. Selections are provisional and subject to a candidate fulfilling conditions regarding scholars family income, age, caste etc. Selected scholars will be nominated to different residential secondary school approved under the scheme for the purpose.

Scholarships will be tenable up to the completion of the secondary school stage of education including plus two stage. The selected scholars will be entitled to receive full school fee including lodging, board expenses, clothing, uniform, pocket and travelling allowance and other compulsory charges as per terms and conditions of the scheme.

— Source, Employment News Dated 18-1-86

THE PRIMARY TEACHER

JULY 1986

VOLUME ELEVEN

NUMBER THREE

CONTENTS

Editorial

1	Values in Soviet Education	K.R.P. SINGH
4	ETV in Pakistan — a glimpse	MONEEZA HASHMI
6	Identifying and Encouraging Children's Creativity	JAGANNATH MOHANTY
9	Causes of General Backwardness among School Children	SHAMSUDDIN
13	Toning up Primary School Health Programme	N.N. PRAHALLADA
16	Teacher's Role in Education ✓	S.L. MAKKAR
18	Quiz to Create Lively Interest	BENIMADHAB MUKHERJI
20	Learning Disability : Challenge to Primary School Teachers	PREM LATA SHARMA
23	Know Visually Impaired Child in Your Class	(MRS.) S. MUKHOPADHYAY
26	Orientation of Teachers for Non-formal Education Centres	H.L. SHARMA
29	Simulation and Gaming in Elementary Education—An Experiment	R.N. AGARWAL

EDUCATING THE DISABLED

All societies have their share of such children who require more than usual care and attention for receiving education. These children have special types of impairments. Whereas a few are blind, deaf or dumb, there are others who have other types of physical disabilities. Already in India we are confronted with the serious problem of disadvantaged children who come from socio-economically weaker sections of society. Added to this list are those who have physical and mental impairments.

Researches inform us that a vast majority of such children are capable of complete rehabilitation. In this context the term rehabilitation has also been defined : it means physical rehabilitation besides life-long economic rehabilitation in the sense that they can also stand on their two feet and earn sufficient income to be able to sustain themselves in life. Though it all sounds so simple, the task as such is not that simple. Educating such children is both time and money consuming. Specially trained teachers are required to undertake the job of teaching them. All manner of facilities are needed but on top of them all is the requirement of such teachers who are energetic and hopeful for future of these children. Even society as such should be ready to accept them. The days of regarding one's disability as a consequence of one's past sins or the 'village-idiot' syndrome of regarding such persons as comic figures are over. The day is not far off when these children would be regarded as normal and capable of becoming useful and productive members of society. But before such a day dawns it is essential that teachers play their own roles well. Special techniques have to be evolved and researchers must find tools which are effective in teaching them. We cannot continue to depend upon other scholars from advanced countries to help us out in performing our own jobs well. Indeed, our own scholars should attempt to find out methods and techniques for teaching our children within our own socio-economic parameters. It has been found that the best of the effective methods fail in countries for which they were not developed or evolved. The question is not therefore that we should not take assistance or guidance from elsewhere but it is always advisable to have such methods which suit our conditions and meet our requirements. Precisely for this reason we present a few papers concerned with this problem.

—General Editor

Values in Soviet Education

K. R. P. SINGH

In a Communist society, the foremost value is faith in common ownership with public control of all types of resources, means of production property, recreational and other social facilities and institutions. Respect for Public property, is, therefore, inculcated in students at all educational levels in USSR so much so that children are severely told not to dog-ear the pages of their books and exercise-book, which are, in a sense, public property and not their private property.

Since the Soviet Union succeeded in space with Sputnik leaving behind other great powers in the race, much interest has been shown in Soviet educational system. Many countries have compared their educational systems with that of the USSR treating it as a yardstick and have found their curriculum wanting in one respect or the other. The Soviet curriculum has proved its worth in an age of Science and Technology because many thinkers have reasons to believe that it has been instrumental to a large extent in the Soviet successes in the field of rocket technology, industry and agriculture. Then, the study of Soviet educational system, and for that matter, of any other country, is helpful in understanding their educational philosophy. The relation between education and axiology is so strong and unseparable

that throughout the history we find educational philosophy acting and reacting on each other. It is, therefore, worthwhile to discuss the implications of Soviet value for their educational programme.

The answer to the question 'What is valuable?' has been implicitly suggested in the Marxist ideology on the nature of knowledge and truth. Marxist theories accept two main categories of truth : truths derived from Communist ideology and the scientific truths derived from the empirical sciences. The latter type of truths must serve the ends of the former type of truths. From these two categories of truths, there emerges of forceful direction to values cherished most in Communist countries. Besides, in the school system of these countries we find an unmistakeable under-current of Communist

moral values.

The foundation of Communist morality seems to be the notion that happiness is the *summum bonum* for man. But in this respect, according to them, great care must be taken to see that personal happiness is only achieved in perfect unity and in service to the collective. In this respect, we may recall Plato who believed that individual can find the optimum self fulfilment by directing his full and unreserved capacities to achieving the good of society in an unqualified manner. Happiness for Plato, as well as for the Communist is social rather than individual. The Soviet values as reflected in their education are therefore distinctly social in nature.

The value of discipline is necessary for optimum production and for waging relentless war against capitalism. Related to discipline, there is another value of respect for the authority. These two values are, therefore, very inextricately woven into the Soviet curriculum. Other co-curricular activities and activities of the Young Pioneers also take care of inculcation of these two values in a big way.

Out of the Communist value of common ownership of property, there naturally flows the value of cooperation and team work which seems to be a cardinal virtue in the Marxist ideology. One of the main goals of discipline is the achievement of perfect cooperation among members of the Communist society. The value of cooperation in curriculum undermines the importance of competition. It is absent in lower levels of schooling. It is, however, found in some small measure at higher level of education and in factories and on collective farms only as a means of increasing production and certainly not for any exploitation.

The children in USSR are expected to place their country above all and to be prepared to give up their lives for defending their homeland. The curriculum materials are naturally replete with lessons on patriotism.

High esteem for work is a value which can be easily seen in a Communist ideology and programmes right from the classical beginning of Communism to its present flowering. Marx, Lenin, Krupskaia and others have always argued with work experience that must serve as an integral component of school curriculum. Krushchev, for example, when found that students graduating from secondary academic schools had started considering productive manual labour as something below their dignity and were developing contempt for manual labour wishing to live at the expense of those workers who create material and intellectual wealth, at once reminded them harshly that every Soviet citizen must inculcate in himself love for labour which he regarded to be an essential characteristic of a developing Communist country. This value is perhaps the key to success of the Soviet economy. Every member of the Soviet society greatly values love for work and the worker.

Atheism is prominently reflected in the Soviet education. Though, in India, it is difficult to appreciate that atheism also can be of educational value but in the USSR it is regarded an important educational value. In the Soviet moral code, it is believed that persons who are not atheists, cannot afford to have a good moral character. The Soviet schools are not expected to be neutral; they have an explicit task of providing atheistic orientation to pupils. According to De Witt, the teacher in a Communist country arranges

presents and slants the curriculum content in such a way that students consciously adopt a materialistic outlook and militant religious attitude.

The scientific mode of knowing is considered to be a value in the Soviet society. This results in devoting as much as 52% of curriculum time in elementary as well as secondary schools to the study of pure science and another 20% to Applied Science.

painting, sculpture, architecture etc. must inculcate Communistic values in children. There is no place in the soviet curriculum for that literature and those art works which do not exemplify certain fundamental value of Communism

From the educational Scenerio of the USSR, explained above, we can at least derive some lessons for our own benefit. One such lesson is that we should be very

Discipline is another important value reflected in the Soviet school curriculum. It is considered to be an essential value; for, without it people will not develop in themselves a sense of public duty and responsibility for their country and also for the workers of the world at large

The educational programmes in Communist countries value patriotism highly. The Soviet school aims at inculcating in children love for their motherland, for her people and for the workers of the world

There are other values also. Respect for the aged persons who have contributed in the progress of Communism, interests of workers, fighting against capitalism, love for national language, equality of sexes which are clearly reflected in the Soviet curriculum. Similarly performing or creative art must further the cause of Communism and realise the ideas of Marx-Lenin. Therefore, art activities in the curriculum including activities under music, dance, drama,

clear in our vision as to what values we want to inculcate in our children. Secondly, those values must be respected in the social environment around the child. Thirdly, the educational value must be in conformity with our socio-political values. They must be in conformity with the larger value system of our society. And lastly, our teachers must have explicit faith in those values.

—Lecturer, DESSH, NCERT

ETV in Pakistan

—a Glimpse

MONEEZA HASHMI

On November 20th, 1964 Television (TV) entered the Pakistani scene. It was described then as a 'luxury'. Today, twenty one years later no one can deny TV has become a 'necessity' in Pakistan. The first centre to begin transmission was Lahore. After that came Rawalpindi—Islamabad, followed by Karachi and Quetta and Peshawar Colour transmissions began in December 20th, 1972. Over the past years, boosters have been installed all over and now the TV signals can be received across the length and breadth of the country. Pakistan is also linked by satellite and can receive and transmit programmes from all over the world. A nation-wide microwave link was established in 1975 and now all five stations broadcast programmes on the national network. Educational programmes were interwoven into the regular transmission and were limited only to children.

In 1972, ETV was officially launched on an experimental basis. PTV created a separate department with trained staff, personnel and equipment. The emphasis was on Adult Functional Literacy. Special community centres were set up and special courses designed for this purpose. Teacher

training courses were recorded for teachers chosen from that particular community so that the audience would be familiar with him or her. The literacy courses that followed were supported by a textbook called 'Naya Din'. Each student was given a textbook so that he or she could follow the tele lesson and later do a revision with the teacher. A series of programmes on simple arithmetic were also a part of this Adult Literacy Package, the objective being to teach the viewer simple addition, subtraction and other mathematical concepts. Again, a textbook was provided as an aid. These programmes were telecast twice a year for the rural audiences twice a day. One session was for women and the other primarily for a male audience. This pilot project was telecast as a complete package several times over with very encouraging results.

The ETV then branched with a series of programmes on health, childcare, safety, immunization and savings specifically aimed at the rural population. Again the response was tremendous.

In the late 70's, the Allama Iqbal Open University asked the ETV to produce their

correspondence courses and transmit them. This arrangement lasted until 1985. The Open University now has its own studio and produces its own programmes which are transmitted over the PTV stations on national network ETV transmissions.

Now, ETV in Pakistan is moving towards a Second Channel. It has been felt in many quarters that ETV programmes will be much more effective if they are telecast at a suitable time for specific audiences. ETV in Pakistan is also planning and designing programmes for school

children, both primary and secondary. Based on the curriculum, these programmes will cover the subjects like science, mathematics and social studies. Education and educational programmes are placed on top of the national priority list by the Government. Therefore, one can foresee a bright future for ETV, a step forwarded in the right direction.

Manager, ETV,
Pakistan Television Corporation,
Lahore

“Journalism” Urged as a Part of Syllabus

“The Light of Andamans” the only leading Newspaper of its kind in the Andamans has carried out an editorial in its 10th March 1986 issue, entitled “Vast Ambit For Educational Journalism in the Islands” as a token of its commendation for the workshop on “Educational Journalism” which was organised in Port Blair jointly by the NCERT and the Andamans & Nicobar Education Department. The editorial discussed and analysed some of the very

important issues and problems as regard to :

1. The quality of school magazines
2. Reorientation of teachers/editors involved in the school magazines and
3. Identification of talent from amongst the school students for being potential educational journalists.

The editorial noted that the teachers in local schools were found practically blanks on this subject. It further recommended ‘Journalism’ as the subject in the degree college as well as in school curriculum.

Identifying and Encouraging Children's Creativity

JAGANNATH MOHANTY

Man is a potential creator. The important difference between man and animal is that man creates intentionally whereas animal does not, if at all, instinctively. Young children are by nature active as well as creative. They show evidence of creative potentiality through the interaction with their environment. Adequate facilities need be provided for identifying as well as promoting creative experiences in Pre-primary and Primary schools

What we mean by Creativity ?

The concept of creativity is very delicate and complicated. It is explained by many in various terms as viewed by them differently. According to Torrance, creativity is a process, a product, a personality or an environmental condition. He has defined creativity as "the process of sensing problems or gaps in information, forming ideas or hypotheses, testing and modifying these hypotheses and communicating the results". Smith has described it as "putting these (past) selected experiences together into new patterns, new ideas or new products". Rogers has also viewed creativity as a process "emergence in action of a novel relational product, growing out of the uniqueness of the individual on the one hand and the material, events, people or circumstances of his life on the other.

Mrinalini Sarabhai has rightly observed : "Creative experience at this stage(primary) is not important. It is essential that the potentiality hidden in the child be discovered and nurtured, that he or she finds the freedom to make his own adjustment to the world, in fact, to understand the significance of life itself."

According to some educators like Guilford, an individual who develops new activities and thoughts, is creative and creativity is the capacity of an individual for mental and development activities. Patty and Jepson have summed up all these definitions : "creativities become the contribution of something of an original nature, the opposite of conformity, the placement of isolated experience and ideas in new combinations or patterns, a departure from the main track and the adaptation of ideas and

information to one's needs". Generally the creative products and processes are associated with imagination, curiosity, innovation, discovery and invention.

Identifying Creativity

Creativity is evident in the fields of literature, music, art, architecture, dance, drama and so on. It is also found in many activities that we usually do not recognise as requiring innovation, imagination, invention or discovery. He accepts these activities as routine, stereotyped and ordinary. For example, house keeping may be regarded as an activity of routine nature not calling for creativity. But also decoration of house, proper arrangement of household materials, intelligent selection of menu for everyday, even entertaining a guest represents genuine creativity. Although mathematics is called dry, dreary and mechanical subject, Rowman has described it "as creative as music, painting or sculpture".

Creative activity is also regarded as spontaneous. For instance a large number of expressions are spontaneous. Some of them may be merely parroting; some of them may be only mechanical and all these activities do not call for any imagination or innovation. Creative activity is also called voluntary and is closely related to spontaneous activity. But preparation is necessary in almost all kinds of creative activities and objects.

Cultivating Creativity

Creativity is not always inborn. It is to be identified, nourished and developed by providing adequate facilities. It is of course, an outgrowth of the child's natural curiosity. No child, however, can be crea-

tive all of a sudden. Teachers and parents must recognise his originality, his individual talent and interest and foster the same to flourish.

Marksberry maintains that creativity should be developed through a process of four steps : (i) Preparation, (ii) Incubation, (iii) Insight, illumination or inspiration and (iv) Verification, elaboration, perfection and evaluation.

We usually expect children to be at the final stage. But unless we see them through all these stages, their latent talent or originality may not be properly developed. Due to our negligence very often the creative potentiality is nipped in the bud.

Areas of Creativity

Language development is an important area of creativity. Although virtually all children possess the ability to speak and to express their feelings and needs, some of them only develop effective and interesting communication which may be called creative. Language development occurs all the time and along with it personality as well as creative expression take place.

Children should be given ample scope for talking and writing i.e. both oral and written expression. Children take delight in pretending-behaving as parents, grandparents, beggars, street vendors etc. There is no limit to their 'make-believe' activities. Dramatic plays, socio-drama, psycho-drama, puppetry and varieties of such activities are called 'creative dramatics' which promote creativity in language learning.

Dramatic play is the initial form of creative dramatics. It is an imaginative play of the young child who imitates life as he or she sees and feels it. It may not be a dramatic activity in true sense. It may be regarded as a play activity. Children ex-

press their feelings and ideas with natural enthusiasm and spontaneity through dramatic plays. But such activity strengthens and broadens their ability to use language in various situations

All dramas should be creative and improvisation takes place in all dramatic activity. Spontaneity or improvisation is facilitated when the story or poem or event or the object of dramatization is familiar and simple. Children play various roles as they feel and like. That is freedom of expression is allowed to all children and all these dramatic activities are also known as "role-playing"

Role-playing is a purposeful group activity in which "learning process takes place not only on the verbal level, as in general, but also on the sense level, the action level and then an emotional level. Through such activities behavioural modification or training takes place and creative abilities are developed to a great extent.

What Teachers can do ?

The teacher has to play a crucial and

catalytic role not only in recognising the creative potentiality but also in providing adequate facilities for developing the same to the maximum. He knows the environment and also the local resources. He has to organise various activities which can provide opportunity for improving the latent potentialities of children. He has to motivate his students and promote his interest and aspirations creatively.

The teacher can take up various experiments and innovations according to the students' needs and available resources for developing creativity in children. He is to nourish their natural talent as a true gardener does with the plants. Vikram Sarabhai has nicely said, "He (teacher) has to provide the soil and the overall climate and environment in which the seed (the child) can grow. One has to be a cultivator rather than a manufacturer!"

*Reader, SCERT
Bhubaneswar-751009
Orissa*

QUOTABLE QUOTES

"Every man who rises above the common level has received two educations. the first from his teachers, the second more personal and important from himself."

—Edward Gibbon : Memoirs

Causes of General Backwardness among School Children

SHAMSUDDIN

In fact, the educational causes of general backwardness in our students are not evils in themselves. They are like headache and temperature, symptoms of diseases rooted elsewhere and it is only when the basic weaknesses of the educational system such as poor quality of teachers, poor equipments, inefficient methods of teaching and defective system of examination are eliminated, that the above evils may be made to disappear and ways and means found out to identify backward children with a view to making improvement in them.

As a result of free and compulsory education for all children of the age group 6—11, there has been a great onrush of students in primary schools. Children from all sections of the public are flocking there in large numbers. All this is a good sign for the democratic traditions that we are trying to build up in our country and the success of which depends on the enlightened mass. Similarly, a very rapid expansion in the field of secondary education augurs well for the future of a developing country. Hundreds of Higher Secondary Schools are being opened in the remote corners of the towns and villages drawing thousands of children from all walks of life.

But, inspite of all this expansion, a strange paradox is observed. People from

every nook and corner of the country are heard crying against the present system of education. Sharp criticism are levelled against the schools, the teachers, the contents of courses, the method of teaching, the system of examination and so on. How far they are justified in their criticisms may be a matter of controversy. But the bitter facts observed by every layman on the street cannot be overlooked. Hundreds and thousands of children failing every year at the Higher Secondary School Certificate Examinations as well as class promotion examinations present a serious problem before the parents and educational administrators.

Besides causing great wastage of time, money and energy, such appalling results

tell upon the moral and mental health of students. They are diseased with dissatisfaction, frustration, nervous down-fall causing further complicated problems in society.

As regards day-to-day problems of schools, the teachers and principals are found to be complaining against the students. In their opinion, they are not punctual and regular in attendance, they are not interested in academic work, they are more interested in passing the examination rather than developing their abilities and so on. They also say that parents do not take interest in the education of their children. The parents, on the other hand, blame the school and the teachers for not giving proper instruction and guidance to children, resulting in large number of failures. Whatever may be the causes but it is certain that general backwardness is found among our school children. The records of their scholastic as well as other achievements do not speak well of their progress

All this naturally causes an alarm and we are forced to ask ourselves: Are we expanding education at the cost of its qualitative improvement? What are the causes of large number of failures among children? Why are the standards of education falling causing backwardness among children? Who are responsible for all this downfall? And how can these be overcome? All these questions present serious problems drawing our immediate attention.

The failure to maintain a standard of scholastic progress is associated with factors intellectual, emotional, physical and environmental. The progress of children in schools is dependent not only on their intellectual abilities but also upon their emotional

stability, interests, physical fitness and the nature of their relations at home, school and in society. Equally important are the educational causes which result in general backwardness in school children. Let us consider them here with a view to finding out some practical remedies.

Since major share of the blame is thrown on teachers, let us give our first thought to them. There is a saying—"No system of education can rise higher than its teachers". Most of the teachers in our schools have entered this profession as a last resource to earn their livelihood. They are not interested in the work. Their qualifications do not speak high of their academic achievement. Since their socio-economic status is lower in comparison to other professions, they feel frustrated which results in their lack of interest in teaching work. Their attitude towards students is not very kind, sympathetic and helpful with the result the student-teacher relations are not very cordial. The teachers teach the subjects rather than children. They fail to inspire and guide children by putting their own high standards of life. All this causes general backwardness in children. For this, re-orientation of teachers is very essential.

Secondly, the curriculum of the school is not properly graded. The options of subjects given by schools in diversified curricula are limited due to the limited resources of the schools. There is no arrangement of effective guidance programme in schools to enable children to make proper choice of subjects. The curricula do not suit the needs and interests of individual children. Hence general backwardness is developed in them.

Thirdly, the methods of teaching subjects in schools are defective. The same old

practices of lecturing and spoon feeding are continued which do not help children in learning. They cram the matter without understanding just to pass the examination. The students do not find any interest in the methods adopted by teachers in teaching and hence they feel disinterested in school work. Also when they do not understand things, a sort of dissatisfaction and frustration is developed causing general backwardness in them. As a remedy for this, the teachers should be asked to adopt new methods of teaching such as Activity Method, Project Method etc. which will not only help in creating interest among children but will enable them to learn the subject matter.

Fourthly, the general atmosphere in schools is not healthy. The relations between the principal and staff or between the principal and public or even between teachers and students are not found to be cordial and healthy. The conditions are worst in privately managed schools where groupism and favouritism are the most common evils. This tells upon the efficiency of work in schools with the result general backwardness in children is developed.

Fifthly, the organization and administration of schools is generally authoritarian. There is too much of rigidity in the working of the institution. There is domination of authority and strict observance of discipline. This crushes the freedom and individuality of the members of the staff and they do work, not willingly but just out of fear. This tells upon the standard of teaching leading to backwardness in children. In fact, democratic administration should replace the authoritarian control to enable both the teacher and the taught feel free and happy to do work.

Sixthly, the students in our schools get lot of leisure which they waste in wandering aimlessly. Due to their empty minds and lot of diversion in society such as Cinema, light literature, hotels etc. and the students being in adolescent age become easy pray to them. Their habits are spoiled with the result they lose interest in studies and general backwardness is developed in them. In fact the students should be kept engaged in a variety of activities from morning till evening. These activities can be games, sports hobbies, extra activities, library visit, ACC, NCC and such other things.

Seventhly, the physical conditions of most of the schools today are not satisfactory. The buildings are not upto the mark i.e., suitable to the needs of modern education. They are not properly equipped. The subjects are there but the necessary apparatus required to teach them is not available in schools. The furniture is old and uncomfortable. The general surrounding is not healthy and happy with the result students do not find any attraction in them and want to run away from there. In the absence of proper and sufficient material, the teachers are handicapped in teaching work. All these result in general backwardness in children.

Last of all, there is the necessary evil of examination in the school. It is over emphasized in schools. The only aim of all teaching and learning is to pass the final promotion examination. The system of examination is defective. It judges the child's ability on the basis of marks scored by him in the final examination. The system of setting question papers is defective. The essay type questions waste much of the time and energy of children. The subjective demand plays major part in the evaluation.

In short, the proper evaluation of the real progress of the child is not done. There is possibility of even the best student failing and the worst passing at the examination. The failures in examination further give rise to problems of frustration, nervousness and fear. All these things lead to general backwardness among children. This can be

remedied by reforming the system of examination and replacing it by evaluation programme to be followed in every school which will give a correct picture of a child's progress

71150, Baijnath Para,
Raipur, M.P.

QUOTABLE QUOTES

"It is not a mind, it is not a body that we erect, but it is a man and we must not make two parts of him."

—Montaigne : Essays I XXV

Toning up Primary School Health Programme

N.N. PRAHALLADA

One of the significant contributions the school can make to a child is to promote his present health and send him out with proper habits and attitudes for protecting and maintaining that health for the rest of his life. No doubt this is a very big task and challenge, but is well within the ability and responsibility of the schools to do just that.

Education in general and Health Education in particular occupies a pivotal position in any contemporary school programme setting.

The importance of good health needs no championing. Children learn best when they arrive at school with a healthy zestfulness for life that comes from a state of physical and psychological well being. According to World Health Organization, (WHO) health is "a state of complete physical, mental and social well being and not merely the absence of disease or infirmity."

A child who is growing in healthy ways has three characteristics. First of all he likes himself and feels respect for himself. He has a sense of being loved and valued by the important people around him. Secondly, he has a sense of being an independent person able to assert himself. Thirdly, he is able to follow his urge to explore, discover, create and master the

real world of things and people. He has kept alive his active curiosity and is bent on learning.

More than any other subject, 'health' should enter into the planning of every moment and every phase of the primary school living. The various phases of health programme must be unified and mutually contributory. The health instruction must make the health service more educative

The school should formulate its health on the following lines :

- It should be an integral part of the regular curriculum programme.
- It should be built on the philosophy that health is a way of living mentally, emotionally, socially and physically. It should grow out of and be a part of all child experiences in school, home and community.
- The objective should not be just good

- health but the most vital and best health possible for each child.
- Health and Physical Education should be conceived, planned and executed as one programme, remembering the significance of adequate health and physical service, health and physical instruction and provision of conditions necessary for health and growth.
- The teacher and the child should think of health as a matter of conduct not as content of instruction.

The school health programme is primarily concerned with prevention. Through constant observation, the teacher can detect early symptoms of physical disorder and suggest to parents the advisability of consulting a physician.

In carrying on any discussion or problem in the field of health, it is particularly important that the whole trend be positive rather than negative. How we keep well rather than the study of sickness and disease should be the main point of emphasis. Also, information should be presented calmly and unemotionally. Because many topics in health education are liable to bring forth a very emotional reaction.

The teacher should try to greet each child individually as he arrives in order to get a quick evaluation of his physical and emotional readiness of the day.

The teacher should try to establish with the children the habit of making sure that they personally greet him/her as they arrive. Without formal inspection the teacher should watch for signs of illness, sniffles, rash, inflamed eyes, hoarseness, swollen glands, flushed face etc. The child who has symptoms of illness should be isolated from other children and arrangements

should be made for him to be called for or taken home. He should not be sent home by himself or left at home without placing him in charge of a responsible adult.

Children need to develop an understanding of how diseases spread and should learn simple guidelines such as the following for protecting themselves :

- Stay away from children who are sick.
- Stay away from children who are coughing and sneezing.
- Drink or eat only from your own cup or spoon unless the dishes have been washed properly.
- Don't give bites of your food to other children or take bites from theirs.
- Wash your hands before you eat and keep tools and playthings out of your mouth.

Children should be helped to take responsibility for reporting to the teacher when they have a sore throat, rash, sore, headache or a stomach ache. This may risk developing a hypochondriac, at the same time it may give valuable protection to individual children and to the group.

Some children come to school with chronic physical problems such as asthma, diabetes, rheumatic fever, epilepsy, eczema, or orthopaedic difficulties. Children who have symptoms of cold or other communicable diseases should be kept at home.

The purposes of the physical examination are many. In the first place it acts as a motivating force for establishing attitudes for healthy living. It locates physical difficulties which might otherwise go unnoticed until a serious condition developed. The medical examination should be made without clothing as a great deal of the examination is worthless if made through clothing. One of the functions of the class-

room teacher is to prepare the children for the examination.

Each and every school should have complete health records of children. The records should include all the information

discovered at the examination. They should be kept upto date by the recording of all follow-up procedures as well as the remedial treatment received and any further incidence of disease or physical difficulty.

The health record should include the following details :

— Health history	— Lungs	— Throat	— Does the child complain of mental or physical illness ?
— Height and Weight (This should be taken three times or more during the school year)	— Heart		— Illness in other member
— Nutrition	— Blood	— Glands	— Remarks
— Eyes (condition)	— Bones	— Skin	— Advice given
— Vision	— Muscles		— Date of Examination
— Ears (Condition)	— Posture		— Examiner
— Hearing	— Feet		
— Nasal passages	— Puberty		
— Adenoids	— Nervous system		
— Mouth and gums	— General condition		
— Teeth	— Vaccination		
— Tonsils	— Diphtheria inoculation		
	— Whooping-cough inoculation		

Lastly, each and every school should have firm commitment towards the health education programme and should have a separate evaluation committee consisting of local expert medical practitioners.

Lecturer in Education, Regional College of Education,

Mysore-570 006.

Teacher's Role in Education

S. L. MAKKAR

The chief task of education is to make human beings to develop the aptitude and attitudes necessary for successful living. There is however, a failure to distinguish between knowledge and wisdom. Knowledge gets out of date very quickly, Specially the scientific knowledge and wisdom does not; rather it grows.

A Clear View

A teacher meticulously analyses the traits of the student's personality. It is here that psychology comes in. It is sad that psychology is more widely and extensively applied to education than to any other field of endeavour. It is suggested to get clear a complete view of the mental health and general well being of a student. With this information at his disposal, a teacher can force a particular student to move in a particular direction. The forcing of a student in a particular direction is not easy.

The teacher has to analyse the socio-economic environment of the student. Moreover, the teacher has to familiarise himself with the parents of the student

along with his peers and reference groups. The teacher has to struggle with the emotions of the student to get a substantial base. He observes the student every moment both inside and outside the classroom. After all through these imaginative efforts, he gets the relevant data regarding the inherent and desired interests of the students.

Before analysing the role of a teacher, we should understand first "What the teaching is"? To me, teaching is a process that reveals the potentialities of the student. Teaching is just a process that develops the personality of the students."

Responsibility

With all this responsibility, the teacher enters the classroom and leaves the class-

room with greater responsibility everyday. Everyday he is busy in updating the students record regarding the student's history, aspirations, personality make up and day-to-day observations of the teachers. Then a day comes, when the student has to leave the teacher and go out into the world to face the hard realities of life. Every year many new faces come to teacher's eye and many old faces vanish

Good Education

The role of a teacher in the educational system is pivotal and therefore, the role of any educational system rests with the teachers. There are two types of teachers to whom we have every reason to be grateful. There are the teachers who teach us facts, who introduce us in a meaningful way to a subject, lay solid foundations and on these foundations raise the tower of know-

ledge properly and firmly. We are highly grateful to them.

But there is another rare type to whom we are also grateful much more who have an attitude to life, an outlook on the world for which we are ignorant. They open our eyes to a new dimension and teach us to see life in a new way. This is the most valuable education that one gets, such teachers can give us two things which good education must provide : firstly a certain intellectual habit and attitude of mind, secondly, a view of life. If education can give these two things then it will have given us the chief equipment that we need. It is here where the teachers role comes to the rescue of all of us.

*Associate Professor
PAU, Ludhiana,*

QUOTABLE QUOTES

"Reading maketh a full man, Conference a ready man and Writing an exact man."

—Francis Bacon : Of Studies

Quiz to Create Lively Interest

BENIMADHAB MUKHERJI

Now-a-days it has been the common practice to introduce the "Quiz" column in almost all the magazines knowingly because it directly appeals and attracts the readers at large leading them further to actively participate in such quizzes. Such efforts have also brought about desirable results. The quiz presented here will entertain and benefit a lot to both the students and teachers of primary classes.

In order to create a lively interest among children, a few questions on letters and numbers are given below :

These have been devised for easy recapitulation of letters and numbers. Questions have been worded in such a way that the image of letters/numbers is immediately reflected on the mind of children and a clear concept is formed permanently. Guidance may be necessary in the beginning.

(I) Letters (Capital)

1. (a) Name the letter which shows the balancing of a weight on its head
- (b) Name the letter whose foot resembles the handle of an umbrella.
2. (a) Name the letters that resemble the shape of a ladder.

- (b) Name the letter that resembles the shape of a small bow.
3. (a) A letter, if turned upside down, is changed into another one. Name that letter.
- (b) Name the letters which do not change, even if, turned upside down
4. (a) Name the two letters which can be arranged in a particular way to form 'G'.
- (b) Name the two letters which can be formed by putting one and two semi-circles respectively on the right side of letter 'T'.
- (c) Name the letters which placed one above the other, the lower one being in the reversed form of the above letter, will form 'S'.
5. Write 'O' and divide it with a vertical line through its centre. If the

- two parts are separated, it will form two different letters. Name the letters.
6. Name the letter whose parts, if separated, will form parts of three different letters.
7. In which letters these slanting lines (/ /) may fit in ?
- (II) Numbers (0-9)
1. (a) Which one is the smaller number 1 or 2 ?
 (b) Which one is the greater number, 8 or 9 ?
2. (a) What is the number just after 3?
 (b) What is the number between 5 and 7 ?
3. Which number resembles the hood of a snake ?
4. What are the numbers which can be formed by combination of two letters ?
5. Which number increases in value when it is turned upside down ?
6. (a) 'O' has no value without any number preceding it. If two 'O's are joined together one over the other what is the resulting number ?
- (b) Cut the head of six, tail of nine & middle portion of eight. What will be left over in each case ?

ANSWERS

(I) Letters (Capital)

1. (a) — T
 (b) — J
2. (a) — A and H
 (b) — D
3. (a) — M (W)
 (b) — B, C, D, E, H, I, O and X
4. (a) — C and T
 (b) — P and B
 (c) — C
5. — C and D
6. — X (Three letters — M, W and K)
7. — N and Z

(II) Numbers (0-9)

1. (a) — 1
 (b) — 9
2. (a) — 4
 (b) — 6
3. — 2
4. — (Four—L and I)
 (Six — C and O)
 and (Nine—O and I)
5. — Six
6. (a) — Eight
 (b) — Zero

B-240, Chittaranjan Park,
 New Delhi-110019

Learning Disability : Challenge to Primary School Teachers

PREM LATA SHARMA

The effective management of regular classroom requires competent and efficient teachers because the role of regular classroom teachers and particularly of primary level have manifold responsibilities to promote effective classroom participation. The regular teachers in this age of science and technology not only cater to the needs of the normal children but also are required to accomodate and monitor academic work of children with various learning disabilities.

The learning of disabled children differs from sensory and mentally disabled children as they face problems in mastering some of the basic skills of learning. Whereas mentally retarded have problems in learning all the academic skills. The definition given by the National Advisory Committee on Handicapped Children (1968) makes this difference more clear, "Children with special learning disabilities exhibit a disorder in one or more of the basic psychological processes involved in understanding or in using spoken or written language. These may be manifested in disorders of listening, thinking, talking, reading, writing, spelling or arithmetics. They include conditions which have been referred as perceptual handicaps, brain injury, minimal brain dysfunction,

dyslexia, mental aphasia etc." They do not include learning problems which are primarily due to visual, hearing and mental retardation.

On the basis of this definition we can state that these children face difficulties in specific areas of learning

Since the causes of the learning disabilities are not yet known but some researchers have attempted to explore the causes of this problem. The medical scholars have observed that learning disabilities arise due to brain dysfunction and mixed domination for hemispheres which cause difficulty in learning the basic skills. But these hypotheses have been rejected by various researchers saying that there is hardly any scientific

validity in these hypotheses because these children generally do not have abnormal development of brain (Balment & Brich 1965, Tinker, 1965) Some other researchers have observed that learning disability runs in family as the twins (zygotic) are more prone to learning disabilities than the fraternal (dizygotic) twins, (Hallgren 1950, Norrie, 1959, Fisher, 1971). But these evidences are not enough to approve and disapprove the role of genetic factors in learning disabilities. It needs to be explored properly. Some social scientists also have attempted to explore this field and found that environmentally disadvantaged children exhibit more learning problems than those who have better environmental facilities. But they are also not sure whether this problem is due to biological factors such as brain dysfunction, nutritional deprivation owing to poor medical care or due to inadequate learning experiences. (Bruner, 1971, Cohen, 1971).

Effective classroom interaction at elementary level can help to minimise the learning disabilities.

From the above statements it is clear that for understanding any learning disabled child the teacher is required to know the influences of these factors on his/her specific learning disability and should not draw conclusion on the basis of misconceptions associated with learning disabilities

LD Children and Their Problem

Learning disabled have average intelligence and their development of brain, physical health, social and emotional also

*Source : The National Advisory Committee on Handicapped Children, Conference Sponsored by Bureau of Education of the Handicapped U S. Office of Education Washington D C. Sept. 28, 1968.

does not vary much from the normal but they have extreme difficulty in learning specific skills. For example a child with reading problem may speak well but confuses in reading similar words such as 'b' with 'd' 'no' with 'on' and 'was' with 'saw'. They differ in their learning problems from the children with mentally retarded as their learning disabilities are not due to the mental or sensory deficits rather these problems are the product of various factors like cerebral dysfunction and emotional or behavioural disturbance. These children have been observed to have problems in learning the following areas :

- | | |
|---------------|-------------------|
| (a) Reading | (f) Spelling |
| (b) Writing | (g) Memory |
| (c) Listening | (h) Attention and |
| (d) Speaking | (i) Arithmetic |
| (e) Thinking | |

It is easier to locate these problems at elementary level of education if the regular teacher is aware about their learning behaviours. The learning disabled children generally appear capable but experience extreme difficulty in learning some of the above mentioned skills. For example, a child with reading disability can speak and write correctly but faces difficulties in reading. These children also have variation in performance. For example a child may achieve better marks in maths but achieves very poor marks in languages, due to reading and spelling difficulties. Besides, LD children also have been observed to have the following problems :

1. Speak well but read poorly
2. Have difficulty in expressing thought.
3. Extreme difficulty in maths
4. Difficulty in following instructions.
5. Are clumsy, have difficulty with laces, buttons, ball catching

6. Confuse similar letters such as 'b' with 'd', 'was' with 'saw'.
7. Confuse up/down, left/right and front/back.
8. Have short attention span, easily distracted.
9. Are overactive or inactive or listless.
10. Are impulsive, cannot wait.
11. Can not foresee consequences

Most of these children exhibit one or two of characteristics and it is rare to have all these symptoms in one child on the basis of these symptoms. The regular teacher can identify these children and can take help of assessment team for assessing their intellectual performance, academic achievement and psychological processing. The psychologist uses many standard and non standard tests to assess their learning disabilities but the teacher made tests have been observed to locate more specific difficulties.

Management of LD Children

The normal children also acquire basic skills at elementary level which help them in learning new concepts. But for learning basic skills the learning disabled children need special attention of the teachers at elementary grades. The teachers can use remedial and compensatory approaches to develop the basic skills in LD children. Since the goal of remediation is improvement of weakness but compensatory strategies on the other hand, make up for weakness by using the strengths of the students. The remediation technique is used to teach basic skills of reading, handwriting, written expressions and maths to younger students.

Under remediation three adaptations are recommended: prompts, extra instruction and additional guided practices. But the compensatory strategies are used to bypass basic skills deficiencies in order to teach content area subjects to older children. Under this technique the teachers give reading assignments, written work and tests to overcome the deficiency. For example children with spelling problem are asked to complete assignment orally and the teacher is required to use the following specific methods for teaching spelling to these children:

- Help these children to use dictionary as an aid.
- Provide them mini dictionary that contains words which they misspell
- Provide handwriting promotes
- Give students 'a' format for writing composition.
- Use instructional tapes for the practice of high frequency and phonetically irregular spelling words.
- Provide more opportunities to practise written expression.
- Ask these children to maintain the records of daily activities.

Conclusion

For developing basic skills in the children we need to provide more planned and systematic teaching-learning experiences at primary grades so that learning disabilities can be easily identified. The teachers are also required to know the appropriate strategy to be adopted for the learning disabled to develop basic skills in them.

DTA, NCERT, New Delhi.

Know Visually Impaired Child in Your Class

(MRS) S. MUKHOPADHYAY

The classroom teacher has obviously to be very alert, accommodating and sympathetic towards children showing behaviour patterns mentioned in this paper. He should take sufficient steps and evolve suitable strategies to meet individual student's needs in order to make learning more meaningful and lasting. However, some general guidelines need to be kept in mind while handling such children.

With Integrated Education of the disabled coming up as an education provision for disabled children, each one of us belonging to the education community will soon be having such children. May be the school authorities will take some steps to see that teachers are oriented to new roles and responsibilities when such children are enrolled. Other method is to get information keeping in view the emerging needs. There may be some children already in your class with visual problems. Their problems are being manifested in such behaviours which even they themselves may not be able to associate with vision defects. And teachers may be punishing them for actions beyond their control. Sometimes we do certain things unconsciously without realizing how it will affect the others and teachers. We should be more careful.

We have to diagnose the cause. Behaviour is only a manifestation of disease/problem. In this article we will discuss about the visual impairment and how it can be discovered even by you. I will like to mention here that you are very important for every child. You can identify problems that they evade the attention of parents or even specialists. Hence, do not undermine your role and capabilities.

Let us first define visual impairment. Usually we think that a child with 'no sight' is the only case of child suffering from acute eye problem that we as a teacher are not concerned as we have been trained to teach only sighted children. Here are a few facts about visual impairment to help you :

(a) Vision is a complex human function and there are a variety of ways in which visual performance can be impaired.

- (b) Visual activity refers to the sharpness of image. Limited visual activity can result in a person being able to see objects less clearly than normal person.
- (c) Colour vision is defective, resulting in an inability to distinguish among colours.
- (d) Most of the cases belong to impairment due to visual acuity. Snellenchart is used to measure visual acuity. It consists of lines of letters, numbers or symbols of graduated sizes which must be read at a distance of 20 feet. Each size corresponds to the standard distance at which a person with normal vision can distinguish it. When a person can read 20 ft. size letter at a distance of 20ft eye sight is normal— 20/20 vision. When he can read a 20ft. letter from a distance of 20 ft. and not from 200 ft., vision is said to be 20/200 which is *not the normal vision*.
- (e) In legal terms a person is 'blind' whose vision in the better eye after correction is 20/200 or worse.
- (f) A person is considered 'partially sighted' if his vision in the better eye after correction is between 20/70 and 20/200.
- (g) For education purposes it is important to have the knowledge of 'visual efficiency' rather than only legal definition. Visual efficiency refers to visual acuity at a distance and near vision as well as such factors as visual fields, ocular motility, binocular vision, adaptation to light and dark colour vision and accommodation. Visual efficiency at functional level is affected by environmental influences, their effects, attitude of the individual towards visual impairment and motivation. You can play a great role in modifying these factors to increase visual efficiency.
- (h) Another criteria for educationally defining 'blind' is that they can learn only through mediums which do not involve sight like Braille, Optacon. A 'partially sighted' needs special adjustments in instruction but can be taught to read print of regular or large size.

All children may not be suffering from severe eye problem since birth but may develop later on even during school years. Sometimes, impairment may go unnoticed for a long time. In India, the screening programme is neither that strong nor that regular. Even in the classrooms, we usually are not conscious of what goes on at 'individual pupil's level. For example, a child bending too near to a book is scolded for wrong posture but may be that is the distance he finds convenient to read. He may be a partially sighted child. A child complaining of headache at particular time of day may not be taken that seriously.

The role of the classroom teacher in identifying children with visual impairment is quite important. He has the opportunity to observe the child in many ways and under variety of conditions. A possible list of observable behaviours of children having visual problems is given in the box on the next page.

Some guidelines

If you observe the above mentioned behaviours in a child over a sustained period, you should advise the parents and direct the child for medical help.

Secondly, if a child tends to move towards the front or the rear of the class, do not always take it as a sign of indiscipline. Talk to him and find out whether he does so to get a better view of the black board.

Even if you have an identified case of partial or educationally total blindness, do

not think that he is beyond your capabilities. He can learn a lot by hearing. Try to procure other additional services for him

but *never* deny him the opportunity to be a part of your class.

LIST OF OBSERVABLE BEHAVIOURS

APPEARANCE

Red rimmed eyelids	Crossed eye or one turning in and other turning out.
Swollen eyelids.	Eyes that cross when child is tired
Crust near lashes	Eyes with pupils of different sizes.
Frequent sties	
Red or watery eyes.	
Eyes in constant motion sizes.	

BEHAVIOR

Blinks constantly.	Reads only brief periods without stopping
Rubs eyes very often.	Shows reversal tendencies in reading.
Tends to have eyes crossed when reading	Tries to guess words from quick recognition of a part of a word in easy reading material.
Tries to brush away blur.	
Seems very sensitive to Light.	
Holds book too close or too away when reading.	Tends to lose the place on the page
Frequently changes distance of book from near too far as he reads.	Confuses 'o' and 'a', 'e' and 'c', 'n', and 'm', 'h' and 'n' and 'r', 'f' and 't'.
Shuts or covers one eye when reading.	Wants to play when he should read
Screws up face when reading.	Has short attention span when doing chalkboard, bulletin or map work.
Frowns when trying to see distant objects.	Shows lack of interest during field trip discussion.
Thrusts head forward in order to see an object.	Cries frequently.
Holds body tense when trying to distinguish distant objects.	Becomes irritable over work.
Becomes inattentive during reading lesson	Has frequent temper tantrum.

*Lecturer, DTESEES, NCERT,
New Delhi.*

Orientation of Teachers for Nonformal Education Centres

H. L. SHARMA

Training of a worker to implement a programme is essential to achieve the set objectives of the programme effectively. It seeks to impart the knowledge about the role and responsibilities of a worker in the programme to equip him to face the difficulties in the field/practice and to enable him to be resourceful person. Like all special programmes, training for Non-formal Education (NFE) Programme has also special importance.

Non Formal Education Programme implies a dedicated effort to fulfil promises towards the Universalisation of Elementary Education (UEE) of children who could not get benefit from formal school education for one reason or the other. In order that NFE programme makes a definite headway a large number of NFE Centres have now been operating all over the States and Union Territories of our country. There are 160,000 NFE Centres in which 4,000,000 children are studying. There is only one person handling all the work related to a NFE centre. He has naturally been well informed and adequately resourceful to successfully run the centre.

This person is known in different places by different names such as facilitator, instructor, centre teacher etc. He deals with

children of different ages having different levels of achievement and varying motivation. He is also to fulfil all sorts of work of organisation, administration and socio-logical aspects of the NFE centre. He, with the minimum facilities at his command, helps the children to attain level of achievement having equivalence with formal school education. In many ways, NFE teacher's work is more challenging than his counterpart in the formal sector.

Broadly speaking the NFE teacher's major functions are surveying the village, identifying the needs of the community, motivating parents, mobilizing local resources developing link with workers engaged in community work, establishing NFE centres, organising NFE centre's activities, teaching all subjects to children of different

ages, abilities, aptitudes, attitudes having different educational backgrounds in 2 to 2½ hours, adopting different strategies to achieve the set goals (of UEE) preparing aids from locally available materials, keeping the record of his work, submitting various informations to authorities, establishing a link amongst different functionaries, developing the instructional materials wherever necessary, making use of environment in his daily work, in teaching work specially in teaching of science

Obviously certain basic necessary competences are needed to be possessed by a NFE teacher to do his job effectively. Some of these competencies are grouping of pupils gradewise/knowledgewise/any other criteria, time table arrangements including duration of the NFE centre, abilities to select appropriate and effective teaching methods, well acquaintance with the total curriculum package, syllabus, books, guides, equipment, aids, demonstrational techniques of teaching science etc.

All the basic and necessary competencies to do job can be developed through proper training/orientation programmes. Though training is necessary to teach all the subjects but to teach science effectively a separate training programme focussing science is necessary in order to improve science teaching at NFE centres.

The training of teachers for teaching science should include all aspects of science and the techniques of teaching science. As one person teaches all the subjects to a grade/class/classes, considerable integrations of the whole curriculum is considered desirable and is possible at the discretion of the teacher. As emphasis is to be placed on inculcation of scientific attitudes and skills, teaching of science should be done through

the concrete experiences of the child's environment progressively structured as the child increases in age. As it aims primarily on the development of skills and attitudes and processes of science, a wide range of subject matter can provide resource for the teacher who can select from it, what is appropriate to his own pupil's needs and interests. Many activities to be done for this purpose will require only familiar articles. The discussion on activities should include science content closely linked to pedagogical aspect of teaching science.

The overall approach for the teaching of science and for development of materials may be summed up in 'Science is Doing'. 'Science' refers to the product of science, i.e. facts, principles, laws, etc. The word 'Doing' refers to the process aspect. It can be learnt through environment. Environment itself becomes a learning resource for science teaching. Simple processes of science such as observation, measurement, classification and communication should be taught through the activities performed by the children as well as by the teacher

Observation implies the process of gathering data using all the five senses.

Classification implies the process of grouping objects based on similar and dissimilar properties

Using numbers implies the process of counting, ordering, manipulating and calculating the numbers.

Measurement implies the process of quantitative estimation of length, breadth, height (area and volume) temperature and weight of an object.

Perception of space-time relationship implies the process of perceiving the capital relationship of an object with respect to an individual and the movement of an object

in terms of the distance travelled in a particular direction in an interval of time

Communication implies the process conveying and receiving ideas through verbal and written accounts by means of pictures, charts and simple graphs.

Experimentation implies the process of designing an investigation to solve a problem.

Analysis and interpretation of data implies the process of reducing or taking apart the components of data supplied or obtained from simple observations to identify the relationship

Prediction implies the process of making statement based on the past experience and on the data obtained from experimentation.

All these processes should be the integral part of science teaching.

In teaching of science emphasis should be more on "learning how to learn" and a "training in methods of self learning". The approach does not need expensive inputs and locally available materials are sufficient. Keeping in view the various constraints of Non Formal Education system, the two approaches namely Activity cum Descriptive approach and Descriptive cum Activity approach may be adopted for science teaching at NFE Centres. The need appears to orient the teachers to enable them to use these approaches to situations prevailing at the centre.

Lecturer. DPSEE,
NCERT, New Delhi

QUOTABLE QUOTES

"What we call education and culture is for the most part nothing but the substitution of reading for experience of literature for life . . . of obsolete fictions for contemporary experience "

—G. B. Shaw : Man and Superman

Simulation and Gaming in Elementary Education

An Experiment

R.N. AGARWAL

Simulation helps in making a system more effective. 'Simulate' means 'to give the appearance or the effect of' or 'to assume' or 'to have the appearance of.' Simulation depicts the working of a large scale system of men, machines, material and information operating over a period of a time in simulated environment representative of actual real world conditions.

In simulation participants are assigned specific roles; they take decisions and solve problems according to specified conditions. Necessary directions are given to the students. Simulation may be defined as a role playing in which the teacher and the students simulate a particular role and try to develop an identity with the actual classroom environment. Thus, the whole simulated teaching programme becomes a training in role perception and role playing.

Reasons for using Simulation

1. In simulation and gaming students learn and enjoy the learning activity.
2. Involvement of the students in simulation and gaming is intense.
3. Students learn mathematics easily as their interest is created due to involvement in the learning activities.
4. The students like the subject matter as they learn it through playway.
5. Children develop different concepts automatically when they play different games.
6. Children get freedom while learning through simulation and gaming
7. Different activities in simulation and gaming are extremely flexible. Problems can be adjusted to any degree of complexity as we desire.
8. Informal atmosphere is created in simulation and gaming. Thus, close teacher-pupil relationship develops which helps in proper understanding of children.

Role of different persons

(i) *The Investigator*: (a) Necessary activities of the game were demonstrated before asking pupils to divide into groups and perform their respective roles in simulated teaching. (b) The rules of the games were very clearly explained to each and every pupil. The role of group leader and different pupils of the group was decided. (c) Different precautions to be taken in simulated teaching were explained (d) Adequate and attractive instructional material was provided in each groups so that the game could be played. (e) Pupils were encouraged to participate very actively in different games so that they could get opportunity to act as group leader (f) Each student was clearly explained about his right and duties associated with their various roles They were instructed to follow the rules of the game so that its objectives could be achieved (g) They were asked to extend their full cooperation to other pupils (h) The investigator acted as consultant and referee and he took round of all the groups to check whether each pupil was playing his role properly Needed assistance in interpreting the rules or in making moves in the game was provided (i) Pre and post game discussions were held so that simulation and gaming technique could be followed properly for developing different concepts Questions were asked from pupils to focus their attention on the key features and reveal what they have learnt from simulated teaching

(ii) *The Group Leaders*. (a) The group leaders played the role of teacher in their respective groups. (b) Each group leader was asked to take adequate instructional material for conducting different activities in his group properly. (c) The group

leaders were clearly explained the rules of the game for conducting different activities. (d) They were also told the procedure to note down their observations.

(iii) *The Pupils* (a) The pupils were divided in groups of ten each. (b) They were very clearly explained about their role in different simulated teaching situations (c) Rules to be followed and precautions to be taken in different games were explained (d) Rights and duties in performing their roles in simulation and gaming were told to them.

Task performed

Learning objectives of different concepts of elementary school mathematics were identified. Task analysis was done to determine the terminal behaviour of the learners. Following steps were taken to create learning environment so that pupils could benefit most from simulated teaching .

- 1 Pupils were taken into full confidence so that they took active interest in the learning process.
- 2 Quite attractive instructional material of suitable size was used in demonstration.
- 3 All the concepts were developed in playway and most of the demonstration work was done outside the classroom.
- 4 Very simple and interesting games were undertaken and rules of the games were explained clearly
- 5 Proper discipline was maintained during demonstration of different experiments, the help of subject teachers was taken in maintaining proper learning environment
6. Most of the pupils were given opportunity to act as group leaders.
- 7 Students played games in real life situations with active cooperation

amongst themselves. Every effort was made so that games were played in sportsman spirit.

- 8 Pupils were motivated and encouraged to take full interest in the development of teaching—learning process

Briefing the Learners

1. Very simple and clear instructions were given to pupils
2. Rules of the games were explained in detail in unambiguous language before they were actually played in or outside the classroom.
3. Group leaders were explained about their duties as they had to play the role of the teachers in their respective groups.
4. Students of different groups were explained about their duties which they had to perform in their respective groups

Performance of Pupils

1. The investigator acted as consultant or referee and took round of all the teams playing the games.
2. Each and every pupil was motivated and encouraged to actively participate in the game.
3. Pupils were asked to prepare very simple instructional material.
4. They were asked to collect the objects like feathers, match sticks, buttons, pebbles, bottle tops, flowers, leaves, to fee etc. which were easily available in the nearby environment.
- 5 Adequate guidance and help was given to the needy pupils.
6. Sufficient, attractive instructional material of suitable size was supplied in each group so that the game could be played

properly and its objective of developing a particular concept of mathematics was attained.

7. Pre-game discussions were held so that each and every pupil very clearly knew the method of playing the game.
8. Post-game discussions were also held so that the children could very easily develop different mathematical concepts.
9. Different precautions to be taken during simulated teaching were very clearly explained.

Analysis of the Result

After developing different concepts of mathematics, the achievement of the students was analysed with the help of criterion test. The experience gained from one simulated situation helped in modifying and arranging other simulated situations.

Steps in Simulation

1. The class was divided into small groups of 10 students each for simulating the teaching—learning process.
2. Each student of the group was provided opportunity to participate actively in simulated teaching as he has a chance to act as student leader or simulator. The student leaders performed the role of the teacher. The role assignments of the student was rotated.
3. The investigator was in the background. He simply supervised and provided adequate guidance for simulating the learning process properly. He simply acted as consultant or referee.
4. The skills to be practised were discussed.
5. The rules of playing games in simulated teaching were clearly explained to the students. Roles of the students who

- will start the game, who will intervene, who will stop and when it will be stopped were decided. A detailed schedule for each student was drawn.
- 6. Different precautions to be taken in each activity of simulated teaching were discussed in detail
 - 7. Each student was explained in detail about his rights and duties in simulated teaching-learning process.
 - 8. Pre and Post discussions were held to benefit most from simulated teaching.
 - 9. Different activities of the simulated games were demonstrated before asking pupils to divide into small groups. First, practice was given and students were given feedback on their performance. If necessary, the procedure of subsequent game was altered to improve the situation and to present significant challenge to each student and to keep interest as high as possible.
 - 10. The usual setting plan of the classroom was changed for performing different activities of the simulated teaching into small groups.
 - 11. Some of the activities of the simulated teaching were performed on the play ground outside the classroom so that each student felt free in participating according to his interest and ability and thus informal atmosphere of learning was created.
 - 12. Each student was motivated and encouraged to play his role properly in different activities. The procedure of playing the game was changed as per the need to keep the interest of the students
 - 13. The procedure of evaluation, kind of data to be recorded and the method of recording etc were decided.
 - 14. Group discussion followed to analyse different activities of the game
 - 15. Different steps of traditional method of teaching were not followed rigorously. Task analysis of the content was done carefully and the subject matter was reorganised to co-ordinate different concepts with different activities of simulated teaching in accordance with the teaching objectives
 - 16. Students were directed to consult textbooks and other reference books in their leisure time in the school or at their home.
 - 17. Home assignment was given to the students in the form of projects for preparing different instructional aids and performing different experiments

*Meerut University, Meerut College,
Meerut*

THE PRIMARY TEACHER

OCTOBER 1986

VOLUME ELEVEN

NUMBER FOUR

CONTENTS

Editorial

1	A Strategy for Child Centred Approach	G VIDYASAGAR Y F. W. PRASADA RAO
5	Educational Technology for Primary Schools	JAGANNATH MOHANTY
8	Developing Software Educational Technology	R N. AGARWAL
12	Self expression of Blind Students	PRABHAKAR SINGH
15	Understanding processes of Universalization of Education	(MRS.) I. GROVER
17	Non-formal Education for Universalization of Education - A Study in Orissa State	SUNIL BEHARI MOHANTY
24	Maintaining School Records	SHAMSUDDIN
28	Significance of Parents Teacher Associations	N N. PRAHALLADA
30	Testing Reading Comprehension in English	MAMTA AGRAWAL
33	Broken Bangles and Creativity	HEM RAJ GARG
35	How to Operate World Clock	C. DURGA PRASADA RAO
37	Formation of Mathematical Signs by Fingers	BENIMADHAB MUKHERJI

NCERT IS TWENTY-FIVE YEAR OLD

The National Council of Educational Research and Training (NCERT) was set up in September 1961 with the express purpose of improving classroom instruction in every sense of the term. The idea was to have better quality textbooks, better teachers and better methods of instruction. Despite a few vicissitudes, the NCERT has come of age. India can today boast of textbooks of the quality we never had before, better classroom instruction—(alas! only in a fraction of schools), better evaluation practices, question banks, NFE and adult education programmes etc. and now computer education has been added to the list. The impact of NCERT is easily visible in all walks of educational life. Our experts have brought credit to the organisation from all over the world. In developing countries, India alone can claim to have set up an institution like NCERT before anyone felt they had a need for one. The All-India Educational Surveys and the Indian Education Yearbooks have done the researchers of the country a good turn. We have both authentic data and the expertise to interpret them. The Central Institute for Educational Technology (CIET) holds out the key for future having employed one of the most powerful media humans have evolved so far. The CIET—an Institute of the NCERT, has already prepared and shown educational films on the Indian TV screen. What is being proposed to be done is much more than what we can tell now. The four Regional Colleges of Education would soon become regional resource centres and function as leaders in teacher education something they were attempting only in an humble way so far.

The NCERT, being an autonomous body within the Ministry of Human Resource Development, plays no small role in the formulation and implementation of Government of India's decisions with regard to education. It is one of these reasons that NCERT has important units working for the universalization of elementary education, women's education, education of the Scheduled Castes and Tribes, integrated education, population education, etc. because all these happen to be priority areas identified by the Government.

The NCERT has also a futuristic outlook. India has to have a strong team of researchers in education, therefore, the NCERT has Educational Research and Innovations Committee. It also has a Workshop Department which produces innumerable useful material for improving classroom instruction. The training facilities the NCERT offers give it a pride of place amongst pioneering institutions.

The NCERT is also the recognized Documentation Centre for education. The NCERT acts in collaboration with several national and international organisations like UNDP, UNICEF, UNESCO, etc.—to name a few. This collaborative character of the organization brings to light yet another dimension of its functioning.

The NCERT's journals contribute in their small way towards bettering the quality of classroom education. We have, therefore, journals addressed to research scholars, science teachers, teachers in general and primary teachers. Brought out both in Hindi and English they have been in the service of practising teachers for nearly two decades.

Let us hope this organization and these journals come up to the expectations of our people. Let us hope we are not found wanting in effort to excel our earlier attempts in all fields and directions of education. For all, what we seek is cooperation from all educational institutions and government establishments—in particular from State Councils of Educational Research and Training. It would be an understatement of the year to say that it is being extended enthusiastically.

R.P. Singh
General Editor

Early School Education

A Strategy for Child Centred Approach

G. VIDYASAGAR
Y F.W. PRASADA RAO

"It is no longer desirable to undertake educational reforms in piecemeal fashion without a concept of the totality of the goals and modes of educational process.. We must think clearly in exploring new paths for the future .. This search for practical alternatives as part of a genuine strategy of innovation seems to us to be one of the primary tasks of an educational undertaking".

The intro of this paper pertains to the Report of the International Commission on the development of education UNESCO—1972.

The sudden changes in the political and social mood of the country provide a launching pad for a new order in education which was visualised with high aims and objectives by the UNESCO's International Commission on the Development of Education.

The present paper is an effort to suggest re-orientation in the basic structure of our primary education system. An effort is made to review different educational philosophies with regard to the nature and management of the school going children, i.e. 5-7 years of age and to formulate feasible activities.

"God makes all things good, man meddles with them and they become evil Rousseau".

How we manage school-going child or how we meddle with him, is of utmost importance. In order to plan what ought to be done with a school-going child we ought to understand his/her nature. A brief review of ideas and findings set forward by a number of educationists is helpful

Rousseau (1712-1778), held that a child is active by nature. A child expresses through ordinary activities

Pestalozzie held that children must be provided with concrete experiences. They must be helped to form proper sense impressions.

Froebel (1782-1852) emphasised the self activity of child. Curriculum should provide

for adequate freedom to the child. His system—'Kindergarten' stresses learning to be an enjoyable activity consisting of play and songs which takes care of sense exercises and the utilization of thinking and reasoning powers of the young mind.

Maria Montessori (1870-1952) believed that children should be provided with proper and free environment to develop their potentialities. Each child should be treated separately without adult interference. Muscular training is important, it facilitates all other activities

John Dewey (1857-1950) viewed the golden principle being the utilitarian value of activities. All activity is not an experience. And all experience is no knowledge and as such not gainful. He held that child's capacities, interests and habits must be understood and continually interpreted. They must be translated in terms of their social equality and in terms of what they are capable of in way of social service.

Piaget believed that Learning has to be active for giving importance to social interaction, priority of actual experience over the language to develop intellectual level. Keeping the child free from clumsy adult interferences. Systematising the child's play. School must encourage individual autonomy and at the same time provide for cooperation among the children. Emphasis on obedience must be done away with. These are the views of Piaget on the basis of his numerous experiments on children and their developments.

With the above theoretical framework, we are of the view that certain situational reorientations are necessary in the management of early childhood education .

(a) The recruitment of teachers.

- (b) Seating arrangements of the pupil in the class.
- (c) Provision of various artistic activities viz., painting, drawing, singing, dancing, music doll-play and dramatics etc
- (d) Facilities for outdoor play.
- (e) Facilities to provide adequate stimulation of the sense organs especially that of audio-visual and sensation of touch and texture by providing coloured picture booklets, objects of different shapes textures colour, Providing Film strip, Video and T.V. Serials.

Recruitment of Teachers

The teachers recruited for the early school going children (5-7) shall be, not on the basis of schools choice. The teachers themselves should choose to handle these classes. We feel that experience in teaching young children and the age group preferably beyond thirty years of age should be criteria for selection. The age is specified because we feel by this age an individual attains considerable emotional balance and maturity. As such they will be in a better position to handle the active and lively children.

Seating Arrangement of Pupil

The generally followed seating arrangement in the classroom is teacher centred which provides less freedom for child's expression and group activity among the children Hence this type of seating arrangement should be replaced by the pupil centred seating arrangement wherein children are provided seats to sit in smaller groups around a circular table or a square table or

a rectangular depending on the size of the group. This gives maximum facility for social interaction and cooperative group activity and equal importance to each child. The role of a teacher in such a classroom situation is to be constantly going around different groups which are involved in different learning activities, providing guias and when necessary and making observations about the child's involvement and progress.

Provision of Artistic Activities

"You do not teach children to think, you give them something to think about" the saying goes .I hear, and I forget .I see, and I remember....I do and I understand . following this maxim, children are to be allowed to choose freely and to express freely through the various art forms through the following activities viz , painting, drawing, music, singing, dance, carpentry, doll play and role play (dramatics). By doing so the teacher is not imposing and reinforcing the readymade knowledge, but instead strengthens the child's own process of reasoning and expression

Facilities for Outdoor Play

Play is the young child's mode of interaction and development (Russell, Mollie 1972) skills involving motor activities such as running, jumping, throwing, catching, striking and kicking, help towards skeletal maturity and gross motor performances. (Seils 1951, Skinner 1959). Hence the school should provide the necessary facilities so as to facilitate these activities with the guidance of a qualified teacher

Stimulation of Sense Organ

Providing wooden cylinders varying in

height only, Blocks varying regularly in size and rods of regularity varying in length for perception of size. Providing pink cubes, stone prisms, green and alternately red and blue rods and coloured tablets etc. for colour perception. For geometrical insets in metal, wood, a chest of drawers containing plan of operations for perception of form. And tablets of wood similar in size but different in weight for discrimination in weight. Rectangular table with rough and smooth surface for touch and cylindrical bones containing different substances for touch and cylindrical bones containing different substances for discrimination in sound (Montessorie, 1870-1952) These practices have to be used not in a mechanical manner but should always emphasise free and imaginative manipulation by the child. The role of the teacher is only to provide the above mentioned materials, but not to prescribe how and what to manipulate The school-going age falls in the second stage of development where the children have the ability to classify.

Use of Film strips, TV and Video can be planned to provide entertainment and as well learning, serials on flower, animals, birds help the children to gain tremendous amount of information and respect for these tiny and beautiful things of the nature.

It appears to be the right time to think about the alternatives for the present commercial oriented primary education where greater importance is given to the school uniform and other peraphrenalia that goes with it the number of books, notebooks, homework and over emphasis on reading and writing work which is burdensome, making the child dejected with the school system.

The above suggested reorientations when properly understood and implemented will be able to place the child in him/her natural and rightful place in the school system, and thereby making school-going

a happy, active and worthwhile experience to a child.

Lecturer, R V R College

of Education, Guntur.

Lecturer, Deptt A L College

of Education, Guntur.

Educational Technology for Primary Schools

JAGANNATH MOHANTY

Childhood years are significant for intellectual growth and personality development. It is the period of maximum learning and as such is crucial for education of the child. Every child is endowed with the built-in physiological as well as neurological mechanism for learning. This mechanism is, however, to be exploited fully by providing learning experiences adequately.

The foundation of all values, attitudes and even achievement is laid in the early years of an individual. Further, his development—intellectual, emotional, social and physical, is very rapid during this period and any deprivation or stimulation is most active, either causing obstruction or acceleration in the growth process.

Although both nature or heredity and nurture or environment play their parts in the development of personality in all its facets—intellect, emotion, values, attitudes, physiques and so on, ceiling for ultimate development is determined not only by the inherited potentials but also by environmental stimulations, particularly received during childhood. Thus the child's developmental ceiling is lowered or highered according to the extent and quantum of nurturing facilities.

Making up the Deficiencies

This holds good for children from any country or culture. In India, it is more important as a high percentage of population is deprived and disadvantaged both socially and economically. The environment of most of the Indian children is poor and unstimulating. The child is in many cases the first generation learner and does not get adequate stimulation and support from his parents, peers and siblings. He is left to himself for development and education.

The research findings in this field reveal that our children when they enter primary schools have serious handicaps in learning. Their vocabulary is very limited, their concept formation is very poor and their psychomotor coordination is quite inadequate. When these children are required to respond to certain standard of learning

in the schools, they start disliking and develop a kind of aversion towards rigid system of early education. This leads to heavy dropouts and stagnation particularly at the primary stage. All the attempts made for universalisation of primary education are, therefore, found mostly unfruitful and inadequate.

Effective Learning

It is therefore felt imperative to make primary school an attractive place for children and to make its programmes interesting to them. Learning in the primary school should be made joyful and entertaining instead of making it dry and drab. Gone are the days when the teacher was an autocrat and pupils were mute subjects; he was only to talk and they were to hear silently. Children need not be stuffed with facts and figures only and be treated as empty vessels to be filled up with knowledge by the teachers.

It has been rightly said that an ordinary teacher tells, a good teacher explains, a superior teacher demonstrates and an exceptional teacher inspires. Especially, the teacher in a primary school should love his children and inspire them in their learning activity.

Once children are inspired and motivated, they must take interest in learning from the tender age and that would bring down the present high percentage of wastage and stagnation at the primary stage.

The Education Commission, 1964-66 has also suggested that children should be provided with suitable environment so that they will be interested in learning and dropout rates will come down. Pre-primary schools should be set up alongwith primary schools and they should compensate for the

unsatisfactory home environment of children from slum areas and poor families.

With a view to making learning interesting as well as effective, various media and materials should be used in the primary and pre-primary schools. They should be in-expensive and easily available. Education and entertainment can be well integrated through their use and children's learning can be a joyful activity.

Playway Method and Materials

It has been confirmed by all concerned that playway method enables the teacher to teach effectively and pupils to learn efficiently. In this context, various play materials like toys and games can be utilised with profit for educational purpose. In our country, even remote rural and tribal areas, there are a good number of materials and games which are of great educational importance and potentiality. But unfortunately, our schools have not tapped them in the teaching-learning process and have remained isolated from toys, games and activities of the community. It is in this context that the NCERT through its children's Media Laboratory Project has made laudable attempts to identify and replicate the indigenous toys and games which are educationally very useful. Teachers are being trained and manuals are being developed for effective use of these materials for education.

Language Development

Some research studies conducted in our country have shown that Indian children experience a great deal of difficulties in learning to read. Besides in various developmental tasks like concept-formation, auditory discrimination, discrimination of

forms, colours etc our rural and tribal children are found deficient to a great extent. Language development is proved to be of crucial importance for other cognitive development Adequate provision of picture books, story books, rhyme books, children's magazines and illustrations help language development and make up the deficiencies mentioned earlier. With UNICEF assistance the NCERT at the National level and the SCERT at the State levels are bringing out a large number of well-illustrated story and poetry books for children

Radio and Audio Programmes

Children love to listen to stories and poems which are also educationally useful There are good number of folk tales and songs, nursery rhymes and puzzles in different parts of the country. They are being collected and printed in books and journals for children Stories, poems and features developed by talented writers according to the interests and needs of children are being recorded and played back by Radio and tape/casseted recorders. These are very appealing to children who enjoy them very

much. Training courses and Workshops are being organised by various National and State organisations for effective production and utilisation of these audio materials.

Media

Lastly, television, slide and film projectors are potential media for education and attempts are being made for production of suitable programmes and materials for children. Special care has to be taken to blend enlightenment with entertainment, inspiration with interest and needs with joy so that these TV and Video programmes, slides and films can be made really useful to children.

All these methods, media and materials which constitute educational technology would make primary schools attractive and their programmes interesting. These would enable children to play, to enjoy, to read, to write, to talk and to sing. Thus primary education can be made really entertaining as well as enlightening and can be universalised in true sense of the term.

*Reader, SCERT,
Bhubaneswar-751009*

Developing Software Educational Technology

R. N. AGARWAL

Good teaching is essentially good communication, and good communication requires sympathetic sharing of ideas with pupils and explaining them

These days we see that many children are not doing well in the schools. The percentage of failures in the examinations is increasing. Their school experiences do not meet their needs. The need of using kits in teaching has increased for solving these problems. The teacher can explain his subject matter very easily by using real objects, models, charts, pictures and instructional material of educational technology.

Adequate material aid is atleast beyond the reach of the village where even the optimum space for classes is not available and due to large number of such schools, the State Governments also find it difficult to provide adequate facilities. Moreover, elementary school teachers are generally without proper educational background and adequate orientation to develop instructional material properly.

There was an age-old belief that mathematics could be taught by means of chalk and talk method. Even today most of the

teachers and educationists do not realise the need of teaching aids for teaching mathematics effectively to the young children for elementary classes. Some of the teachers rationalise that sophisticated instructional material of mathematics is needed for teaching this subject. High cost involved in teaching aid proved to be deterrent in teaching this subject effectively. They feel that demand for instructional material for teaching mathematics is just like crying for the moon. They say, while essential aids such as proper black-board and chalks are not available then how they can dream to get effective teaching aids?

There is pressing need to develop suitable mathematics laboratory. Mathematics laboratory would develop manipulating skills and provide experiences with objects, concepts and verification of relationships. Students get opportunities, engage themselves in the process of investigation and inquiry. Laboratory

activities are the primary vehicles for helping students to solve problems, to develop attitudes towards learning and inquiry. Laboratory work plays a central role in the teaching of mathematics. Numerous experiences to carry out laboratory activities are provided. Students perform experiments and manipulate materials, gather qualitative as well as quantitative data, make inferences and generalizations and communicate the results of their activities in different ways.

Key ideas or operations of mathematics must be presented in such form as are within the intellectual reach of children. Elementary school children manipulate the elements through action. Hence, we should present materials in concrete shape so that they may handle it with interest and develop different mathematical concepts easily. For example, cuisenaire rods may be used to develop several abstract concepts of algebra easily. First, coloured rods are used for unknown quantities. Later on numbers are placed on them according to their length. In the end children are shown numbers alone. In this way the Commutative, Associative and Distributive laws can be easily learned by the children.

Many significant research studies support the generalization that new media and learning materials, when properly selected and wisely used, can help students accommodate increased amount of factual learning and sustain greater retention. Students gain substantially more by multi-media instruction than by lectures. Instruction can be significantly improved through the wise selection and utilization of programmed learning materials, models and specimens, charts, tape recorders etc. The total teaching task

is complicated by the teacher's realization that he has not been adequately prepared during his professional training to understand, select, prepare and use new instructional materials with efficiency. The broad and varied use of diverse modern communication devices can serve effectively to offset a host of impediments to the teaching learning process, and that, while each of these various devices can serve a uniquely useful purpose in transmitting information to the pupils, learning is accomplished most efficiently when a careful selection of several media is made, each medium serving to reinforce the effect of the others. The selection of the devices and the subject matter to be communicated should take into account the following principles of learning:

1. Learning stems from perceptual—that is concrete—experience
2. Subject content, and the media used to impart it must be suitable to the learner.
3. Creativity is the goal of learning.

In applying these three principles, the teacher of mathematics is confronted with several tasks. First, the teacher must determine the learner's level of conceptual attainment as rooted in their previous experience. Secondly, he must evaluate the subject matter to be communicated in terms of the level of pupil's conceptual ability. Thirdly, he must select the kinds and degrees of concrete learning experiences which will best be suited to, or have the best chances of reaching the pupils at their own levels; fourth he must select the media which will best provide the best learning experience—and in such a manner as to transport the learners higher up the abstraction scale without sacrificing true

meaning and understanding in the process, and finally he must use the materials and media in such a way that the pupil's own inventiveness and creativity will be invoked.

The need of kits for the teaching of mathematics has increased enormously as we are now more conscious that foundation of learning is perception. Our perception sensory mechanisms are our continuing contacts with our world of things and events. The eye, the ear, and the nerves endings in our skin are the means through which we come to know our external environment. The cognit mechanism of our brain and our sensory apparatus provide us with the means of perception. One's concept of 'circle', for example, is based initially upon sensory impressions fed to the brain by the eyes, the cognitive process then orders these impressions into an organised, whole perceptual event, "circle" which is recorded in memory. When the individual comes across another circle and the ensuing sensory data are again organised, the individual thus recognises the perceptual event. After enough of these repeated experiences, the individual can recall an image of a circle. Thus he generalizes those, he has perceived from first-hand experience, without actually perceiving a circle. In this way, the individual acquires a primitive abstract concept.

It is widely felt that at the elementary stage, there is total absence of basic equipments and kits, good blackboard, small library, essential models and charts and necessary display material. The provision of teaching aids in every school in the country is essential for the improvement of the quality of teaching mathematics. It would indeed bring about revolutionary change in teaching mathematics.

On a high priority basis immediate steps should be taken to see that basic minimum teaching aids are given to every school. At least a few progressive schools should be equipped with variety of learning material for the teaching of mathematics. The majority of ESM teachers in our schools will have to rely on inexpensive teaching equipments which are easily available in the locality or are made by them with proper encouragement and little financial assistance.

Steps Taken

1. Details of different types of kits to be developed were discussed with the teachers actually teaching mathematics.

2. Lists of different activities of teachers and pupils during teaching-learning process were prepared

3. Lists of kits to be developed for different teacher-pupil activities were prepared.

4. Available material to be used for developing kits was purchased from the market on the basis of quality, cost and suitability.

5. Only those instructional aids were developed which suited the needs of elementary school.

6. The improvised kits were discussed with the experts of the subject and teachers of ESM.

7. As the result of above discussions necessary changes and modifications were done in the improvised kits.

8. Improvised kits were tried in real classroom situations.

9. Reactions of the pupils and teachers were noted and further modifications were made on the basis of feedback received. Thus the prototype was developed.

10 The carpenter, blacksmith and the painter were approached to develop kits of mathematics of desired specifications.

11 Some charts, pictures, diagrams and graphs were also prepared with the help of an artist.

It is expected that the kits developed would serve as a complete laboratory for the teaching of ESM. About 40 children can perform their experiments in groups or individually. These kits can be stored in a box of suitable size which can be placed inside a cupboard or in the corner of a room. The teacher can use these kits in the classroom as well as in the open.

The kits can also be improvised with no cost or negligible cost using waste material available in the environment of

the pupils. Teachers of mathematics can motivate young children to collect charts, graphs, pictures and different cutouts from old and illustrative magazines/journals and used books etc. They can collect waste packing boxes, match boxes, bottle tops, buttons, pebbles, feathers, leaves, stamps, shells, minerals, glass etc. Cheap quality card sheets and the waste material easily available in the environment can be used to develop effective instructional material. Mathematics teachers can take help of grown up children and teachers of arts and craft in developing different instructional aids.

*Meerut University
Meerut College,
Meerut-250001.*

Self—expression of Blind Students

PRABHAKAR SINGH

Self-expression is a necessary condition of creativity and therefore, if creativity is one of the goals of education, then self-expression must play a part in developing the child's personality. It may lead children to reveal more of their inner self which may have psychological value. Self-expression in the artistic sphere has a part to play, because it can be educationally valuable and it is a necessary part of artistic creativity

According to the Oxford English Dictionary, the word 'self' is used as a prefix with reflexive meaning 'one self', 'itself' in various relations with the second element of the compound. The word 'expression' is the action of expression or presentation of a meaning, thought, state of things in words or symbols; the utterance of feeling, intentions etc. Self-expression is the expression of one's own personality, the assertion of one's individual traits. According to Dictionary of Education, Expression of thoughts, feelings or percepts of an individual according to his own level of development is self-expression. W. M. Ivey has pointed out that, self-expression is dynamic and ever changing according to child's mental and emotional level. Thus self-expression is the reflection on an individual's personality as well as a process of developing personality of the individual.

One should not be mistaken, that only self-expression is sufficient to warrant talk of creativity. In creative self-expression a human being realizes freedom. In this connection Tagore pointed out : "The most important thing is that there should be daily practice by the pupils in expressing immediately what they are learning"

Self-expression is envisaged as outpouring of internal resources, in relation to which the teacher has the role of a sympathetic (Passmore, 1980). But pupils who cannot effectively communicate or effectively act, cannot express themselves. They cannot make it plain to others who and what they are.

In the process of self-expression the role of sense organs cannot be minimized. Our senses are sometimes referred to as our "avenues of the world". Although this statement does not tell us much about the

senses, it does remind us that the only way we have of responding to the outside world is on the basis of information received and operation by our sensory system. All sensory systems exhibit certain properties e.g. all show phenomenon of adaptation, and all show some form of contrast and marking effects. Each sensory system has its own transducing mechanism, its mechanism for transducing environmental energy change into changes inside the organism that are physiologically useful. The eye does this with a very complex photochemical system. Our ability to see is perhaps our most sensory capacity. The loss of any sensory system represents a serious handicap to the individual, but vision plays a major role as we move around in our environment, as we communicate, as we learn in the classroom. Sighted people, if they possibly can, use vision to acquire experience. Sight is the dominant sense, with a strongly integrative function. Blind people must use the other four senses, which are apt to give less full and more fragmented impressions. Sight also plays an important role in incorporating impressions obtained from the other four senses.

The blind child's delay in the acquisition of "I" as a concept and a stable form appears to be related to the extraordinary problems in constructing a self-image in the absence of vision. The blind child has no sensory mode available to him which will replicate his own body or body parts. The blind child is obliged to constitute a body image from the components of non-visual experience available to him not one of which will give him, though objective reference, the sum of the parts. His tactile, auditory, vocal, kinesthetic and locomotor experience will give him a sense of substantiality and

autonomy of his own body, but these sensory modes bind him to egocentric body and self-experience and cannot lead him easily to the concept of self in which the self can be taken as an object, the indispensable condition for the non-sycretic "I" is the externalization of that picture into a community of pictures each of which in an "I". For the blind child there is no single sense that can take over the function of vision in replicating body image. For the blind child, the level of inference required for the construction of the non-sycretic "I" goes beyond that of the sighted child.

In a living system of education, the creative spirit should be fostered to the fullest extent by providing a field for its unobstructed self-expression. This freedom of self-expression should apply as much as intellectual and constructive activities as to the aesthetic. The teaching of art is free-expression. According to Passonose (1980), "to express one self, one must first learn to express, to learn to express entails an apprenticeship in being careful. The value of self-expression depends on quality of expression". Some difficulties in self-expression can be minimized by strengthening, developing and sharing the power of verbal communication during school years. pride of place should be given frequently in school and colleges of further education for the visually handicapped to provide opportunities for self-expression through discussion of current affairs, through debates and in public speaking. It would be hardly surprising for the blind adolescent to struck from being noticed because of his handicap, although he is likely to be in a stronger position of tolerance if he has felt valued for himself and has experienced success, enthusiasm and interest in commonly accep-

pted activities—swimming, stamp collecting, piano playing, singing, painting, story writing, dramatizing can provide with a taking point to share and recognizable reason to increase his self-expression. In primary school years the visually handicapped child needs both structured and unstructured situation to learn as much as possible about the people and the environment that surround him, through exploring, investigating and conversing. Active play may need to be initiated but through it can be helped to externalize some of his inner conflicts. He needs the chance to destroy and build to act out hate and love, and to test out his relationships with others. His sense of security can be foste-

red by a stable framework of dependable events and reactions from adult including steadiness and lack of dismay in the face of frustrations. The qualities he may need to draw on from his teacher upon whose reserves of emotional stability and tolerance he can depend. Activities like school function, morning assembly, occasion of awards distribution, parents conference, national democratic activities, NCC, Scouting, NSS, are some of the co-curricular activities which are useful in developing the self-expression of blind students.

*Lecturer in Education
Training Centre for Teachers of the Blind,
B.R.A., New Delhi-110003*

Understanding Processes of Universalization of Education

(MRS.) I. GROVER

It is largely since the second half of the present century that majority of the developing countries have accepted the policy of universalization of primary education. Progress achieved in this direction reveals that whereas schooling provisions and enrolment of children at school has increased rapidly, retention in school continues to be fairly low. The World Bank (1979) reports that in the developing countries only half the primary school entrants reach the fourth grade, while retention is lowest in the initial grades.

In India the dropout rate in primary grades has remained around 60% in the post-independence era. Low retention indicates inefficiency in the functioning of the system. This calls for a better understanding of the universalization processes, the salient features of which are described below.

Firstly, the national policy on universal primary education is a new process "an innovation" in the history of education of developing nations which involves major quantitative and qualitative changes from the elitist education of the few to mass education of the many, restricted and expensive schooling being replaced by free or subsidized schooling.

Secondly, the role of basic/primary education in human resource development is a modern view. Primary education has the largest universal coverage of adopters in the

form of young children of school-going age, irrespective of race, socio-economic background, region, nation, language, caste or creed, sex and culture etc.

Thirdly, the government adopts the policy of universalization of primary education and is mainly responsible for regulating the quantitative and qualitative provisions for schooling while the adoption outcome is determined by the decision of the family, in terms of enrolment and retention of children at school. Thus, the family is a crucial adoption unit in the process.

Fourthly, when education is universalized, educational wastage is not a simple phenomenon of dropout and repetition alone since non-enrolment can equally be a significant problematic issue in order to achieve the desired goal of universalization of primary education.

Fifthly, the theoretical literature on innovation—diffusion provides useful information regarding adoption behaviour of adopters of new practices in agriculture, family planning, health practices etc. When applied to study educational responses of families reveal that non enrolment is a form of rejection of the educational practice before adoption while dropout is a form of rejection of the education practice and trial. Thus, children who leave school before completion of primary grades are rejectors after having attended school for some time.

Sixthly, it is the characteristic of the new educational practice or innovation in terms of relative advantage over the earlier practice, complexities involved in terms of newer adjustments and compatibility with the existing values and traditions viewed by families

and not by experts/planners alone that largely determine success in the universalization of education.

Lastly, rising enrolments in school reveal that parents desire children to be educated while the subsequent phenomenon of drop-out highlights that besides socio-economic factors the schooling factors play an important role in the process. Ironically, where socio-economic condition of people is poor schooling provisions remain grossly deficient and dropout and non-enrolment remain fairly high. Favourable environmental schooling and socio-economic factors have multiplier effect.

*Department of Ext. Education
College of Home Science, HAU,
Hissar.*

Non-formal Education for Universalization of Education

A Study in Orissa State

SUNIL BEHARI MOHANTY

Education has been accepted universally as an essential factor for the development of individual in particular and the nation in general. This has necessitated provision by the government for certain amount of education for its budding citizens. The provisions vary from country to country. Universalization of education is a myth in most of the developing countries including India, which has also nearly three fourth of the world illiterates.

The Constitution of India in its Article 45, had mentioned about the possibility of primary education for all children within fourteen years of age, within ten years of the commencement of the constitution. This has not been possible even after thirty seven years of independence. Poverty of the masses has stood on the way. It has compelled some children to work instead of attending school. There are also some other children, who sit idle at homes because of inability of their parents to take care of minimum school expenses such as dress, books, other reading and writing materials and food in school time.

The removal of poverty is not an easy task. The government plans to provide

education to these non-school going children in small doses. This is the main theme behind the non-formal education programme. The programme is not truly non-formal programme but mini-formal programme. The teacher gets a petty sum of Rs. 100 per month as remuneration and is expected to teach students for a few hours (one or two). The objective is to help students who could be fitted into various classes of formal schools. Such a programme may not be fruitful (Mohanty 1984). Hence there is a need for the study.

Objectives of Study

1. To study the administrative and supervisory problems at centre level.

2. To study the working condition of the centres with respect to :
 - (a) Teacher attendance
 - (b) Community support
 - (c) Instructional facilities
 - (d) Methods of teaching and
 - (e) Student population.
3. To study the need for non-formal centre in a village in terms of the distance from the nearest primary school and its accessibility to the village children throughout the year.

Methodology

The schools (26) in three blocks, situated in two revenue districts were visited. These schools were selected according to their proximity from the place of residence of the researcher. The data was collected through personal visits. An observation schedule, an interview schedule for teachers and an interview schedule for villagers were used. The data analysis was restricted to percentages. The data were not representative of the situation in the whole state. The study intended to act as a pilot study for a larger study covering the whole State.

Discussion

The results of the study give a gloomy picture.

Administrative and Supervisory Practices : The quality of administrative and supervisory practices is very poor—out of 26 centres one teacher had been appointed for 1 (6%) centre, the post was lying vacant for previous three months. At a time, when there is no shortage of qualified persons, inertia of the administration had allowed the post to remain vacant. Administrative inefficiency was also the cause for non-payment of monthly remuneration of Rs. 100

for previous seven months. Only 4 centres (16%) had been supervised. This also indicated inertia among supervisors. Non-payment of remuneration and travelling allowances to the supervisors might have been the cause for an inertia. The quality of supervision was not upto the standard as the minimum requirement of use of pro forma for supervision had not been taken into account. Thus there was lack of sincerity on the part of the administrators and supervisors. Obviously the same was to be expected from the teachers.

Working Condition of the Centres : Teacher truancy was rampant. Only 12 centres (48%) were found functioning. However, there were 3 centres (12%) which had substitute teachers. On the whole 15 centres (60%) were working. Teacher truancy might have been due to non-payment of remuneration for months together. Only 5 teachers (20%) could earn a little extra money through private tuition. It indicated that poverty of parents did not allow teachers at all centres get extra money from private tuition. This situation would have improved, if all of the teachers would have been villagers. Only 8 teachers (32%) stayed in concerned villages. Others had to come from other places. The centres which had teachers staying in villages were working on the day of the visit. This indicated that accommodation for non-formal teachers should be provided for checking teacher truancy. Again truancy was more among male teachers than among female teachers. The sample is too small for generalisation. Besides, women are better suited for dealing with children.

Community support is essential for success of non-formal education. It was found only in case of 4 centres (16%).

Community members can be involved in day to-day work of the school. But the teachers were not aware of this possibility. In one centre, it was observed that villagers were playing cards while the teacher had too many students in her class. The shouting of players was also disturbing the class. The playing of cards near the school could not be stopped.

The position of instructional facilities was very poor. A blackboard was not even available in 1 centre (4%). None of the centres had any other aid. These non-formal centres are similar to single teacher schools. There are single teacher schools even in developing countries. But these schools have adequate resources including a teaching assistant in each school. Besides these have remedial teachers, teacher for games, etc. The non-formal teacher cannot do justice to his or her job without proper instructional materials. The involvement of peers of students was found in early part of this century. This was also put into practice in U.K. This strategy should be utilised in these non-formal centres.

The methods of teaching adopted by teachers were not proper. This conclusion is based on observation of teaching. The researcher was not satisfied. The teachers, when asked, also expressed the need for training.

Average student population per centre was 20. The number was 15 in case of centres run by male teachers and 25 in case of female teachers. This phenomenon may not be applicable for the whole State. The sample should be larger for arriving at such a comparison. Need for non-formal centre was felt much in case of two villages which had Anganwadis, as well as non-formal centres. Only one village did not have a house for non formal centre. The house had been

blown away by cyclone. It was yet to be reconstructed. The class was going on in a private house and the students were also limited to that house. Of course, there was one centre, which was not using its own house but the nearby primary school. On the day of visit, the non-formal teacher was absent. The students were studying along with other students of the school. This indicated that there was no necessity of non-formal centre. None of the centres was situated at a distance of more than one kilometre from the nearest primary school. However children of 16 centres (64%) could not travel to the primary school during the rainy season. Hence, if the communication to the villages could be improved, non-formal centre need not function separately. At best the non-formal teacher could be attached with the nearest primary school having less than one teacher per class. However, the researcher felt that there was no need to establish 9 non-formal centres (36%). These could be immediately abolished and the teachers adjusted in nearest primary school having less than one teacher per class. In case of all centres, the villagers agreed that their students were able to attend for full time.

Poverty of masses continue to thwart the progress of universalization of primary education. Most of the non-school goers remain untouched by non-formal education programme. In most of the cases it is a remedial programme for school goers. The researcher had a similar experience while conducting programme for non-school goers through National Service Scheme volunteers of Sambalpur University. During the course of the present study when the researcher asked a mother about the reason for not sending her son to the non-formal

centre. Her reply was that making both ends meet was more important than sending to school. The child had to be involved in weaving *mata* for maintenance of the family.

The nature of the ongoing non-formal education programme needs change. The non-formal teacher has to be a villager. A non-formal centre needs to be opened only at village, where children cannot walk to the nearest primary school during rainy days or in summer. The location of existing non-formal centres needs to be reviewed. Some of these centres need to be abolished and the teachers of these centres be adjusted in nearby single teacher schools or primary schools having less than one teacher per class. The teachers need orientation for handling of primary school children. The remuneration of such teachers need to be enhanced. The non-formal centre operating in remote areas should have two teachers instead of one so that the centre remains open on all working days. There should not be holidays for these centres. The teachers need to be paid their remuneration regularly. There is no need for having inspectors for non-formal centres. The inspection should be integrated

with the inspection of formal schools. However, number of non-formal centres and formal primary schools per inspector should be less than 20 so that each of these centres or schools may be visited every month. There is also the need for improving the quality of supervision.

The community involvement in education is very important for success of the programme of universalization of primary education. The teachers need to be encouraged for enlisting cooperation of public in either classroom teaching or in conducting various types of games, sports and cultural activities. This will reduce the boredom found in schools. This may also make the school programme more interesting.

Non-formal education programme also requires provision of midday meals for children. To differentiate children according to the income of their parents may be difficult. Hence such provision should be made for all children in a particular age group. The programme has been initiated by the Tamilnadu State followed by Andhra Pradesh and Gujarat etc.

TABLE I
DATA FROM OBSERVATION SCHEDULE

Sl. No.	Particulars	Male No. (%)	Female No. (%)	Total No. (%)
1.	Number of non-formal centres visited
2.	Number of centres in which teachers had been appointed	18	7	25 (94%)
3.	Number of months for which the teachers had not been paid (as on 1.4.1985)	7	7	1
4.	Number of non-formal centres which had been supervised, since their opening	3 (17%)	1 (14%)	4 (16%)
5.	Number of centres where a proforma had been used for supervision	0 (0%)	0 (0%)	0 (0%)

<i>Sl No.</i>	<i>Particulars</i>	<i>Male No. (%)</i>	<i>Female No. (%)</i>	<i>Total No. (%)</i>
6.	Number of centres where teachers earned extra money from private tuition	3 (17%)	2 (29%)	5 (20%)
7.	Number of centres where teachers were present during working hours	6 (33%)	6 (86%)	12 (48%)
8.	Number of centres, where a substitute teacher was found	3 (17%)	0 (0%)	3 (12%)
9.	Number of centres, which were working	9 (50%)	6 (86%)	15 (60%)
10.	Number of centres where teachers were staying in the concerned village	5 (28%)	3 (43%)	8 (32%)
	(a) Number of centres which were working	5 (100%)	3 (100%)	8 (100%)
11.	Number of centres, where teachers were staying in other villages	13 (72%)	4 (57%)	17 (68%)
	(a) Number of such centres, which were working	7 (54%)	3 (75%)	10 (60%)
	(b) Average distance travelled daily by such teachers	10kms	8kms	8kms
	(c) Maximum distance travelled daily	20kms	8kms	20kms
12.	Number of centres, where teachers were being given certain help in either cash or in kind	3 (17%)	1 (14%)	4 (16%)
13.	Number of centres having black-board	17 (94%)	7 (100%)	24 (96%)
14.	Number of centres having other aids	0 (0%)	0 (0%)	0 (0%)
15.	Number of centres where teachers were using methods upto satisfaction of the researcher	0 (0%)	0 (0%)	0 (0%)
16.	Number of children present (average)	15	25	20
	(a) number of children below school going age	7	3	5
17.	Number of villages having non-formal centres as well as Angan-wadis	1 (06%)	1 (14%)	2 (8%)
18.	Number of villages having non-formal centres as well as private schools	2 (11%)	2 (29%)	4 (16%)
19.	Number of centres having own house	17 (94%)	7 (100%)	24 (96%)

<i>Sl. No.</i>	<i>Particulars</i>	<i>Male No (%)</i>	<i>Female No (%)</i>	<i>Total No. (%)</i>
20.	Number of centres having own house but functioning in a primary school	1 (06%)	0 (0%)	1 (4%)
21.	Number of centres situated at a distance of more than 1 km from the nearest primary school	0 (0%)	0 (0%)	0 (0%)
22.	Number of centres whose children cannot walk to nearest primary school during rainy days	11 (61%)	5 (71%)	16 (6%)
23.	Number of centres, where students can attend for full time	18 (100%)	7 (100%)	25 (100%)
24.	Number of non-formal centres need to be converted to primary schools having a full fledged teacher and a non-formal teacher in each school	11 (61%)	5 (71%)	16 (64%)
25.	Number of non-formal centres which may be abolished	7 (39%)	2 (29%)	9 (36%)

TABLE II
DATA FROM INTERVIEW SCHEDULE FOR VILLAGE HEAD

<i>Sl. No</i>	<i>Particulars</i>	<i>Male No (%)</i>	<i>Female No (%)</i>	<i>Total No (%)</i>
1	No. of centres remaining usually closed on working days	11 (61%)	1 (14%)	12 (48%)
2	No. of centres where frequency of absence of teachers increases in rainy season	13 (72%)	4 (57%)	7 (68%)
3.	Number of children too much	0 (0%)	2 (29%)	2 (08%)
4.	Teachers are given help	3 (17%)	1 (14%)	4 (16%)

TABLE III
DATA FROM INTERVIEW SCHEDULE FOR TEACHERS

<i>Sl No.</i>	<i>Particulars</i>	<i>Male No (%)</i>	<i>Female No. (%)</i>	<i>Total No (%)</i>
1.	Number of children has too much	0 (00%)	2 (29%)	2 (08%)
2.	The teacher feels necessity of training (Present teachers)	9 (100%)	6 (100%)	15 (100%)
3	Instructional aids were inadequate	9 (100%)	6 (100%)	15 (100%)
4.	Remuneration was too less for making both ends meet	9 (100%)	6 (100%)	15 (100%)
5.	Average number of children in the school going age group not attending the non-formal centre	15	15	15

Head, Department of Education, Bhadrak Collage,
P.O. Bhadrak, Orissa—756100

Maintaining School Records

SHAMSUDDIN

It will be an imperative duty of the Government which holds welfare and happiness of people dear to their heart to generously aid schools in organising such schemes. Victor Hugo was not wrong when he said, "Those who open a School close a Prison".

The field of Cumulative Record is a vast one. An immediate need is that of 'Appropriate Forms'. For the tentative use of certain record forms which are already in use in our schools, I am making a few suggestions, employing theoretical sound assumption and valuable directions from experts and experienced persons; however, to prove their validity they will have to undergo a test of trial.

It may be possible to enumerate such problems but before one can delve into them, it is essential that the machinery of cumulative record system may be put in motion on the lines suggested below.

Family History

Every individual bears an imprint of the environment in which he is brought up. The family which constitutes the earliest environment for every individual is one of the most patent forces in moulding per-

sonality. It is more important because the family is almost the exclusive environmental factor which influences, the first few formative years of life. Pestalozzi, with a true insight, regards home as an indispensable factor and the mother as the source of all true education, because during these earliest and impressionable years, the family is the child's social environment. During the first six years, the child's proper place is home. Here it gets freedom, spontaneity and affection. It is here it learns to speak acquire a certain vocabulary and a certain range of ideas. Here it forms its early habits. It is the foundation of child's virtues such as sympathy, affection, generosity, considerateness, justice, truth and industry. Psycho-analytic literature is full of cases wherein it was found necessary to go back to childhood circumstances in order to understand the personality problems of the adult. It is, therefore, necessary to know the family

background of a student before an attempt is made to understand him. To fulfil this need, Family History Record Form should be maintained

The Family History Record Form should be filled in, bearing in mind the following instructions :

A general impression, based on the evaluation of various aspects of family status, should be entered with references to the following scale :

A	B	C	D	E
Upper	Upper	Middle	Lower	Lower
Middle	Middle	Middle		

As regards the order of birth of the child in the family, it should be shown as follows :

If the child is the eldest one of five children he should be marked 1/5. If a child is marked 6/7, this indicates that the child's position in the family is the sixth out of seven children.

Parental attitude towards children can vary right from pampering to positive neglect. Even in the same house, it is observed that all children are not treated alike. Some are more loved and liked than others. Some are favoured by father, some by mother. If the child is over-protected or pampered, it should be mentioned in the form.

In case the child lives with anyone other than his real parents, details of the persons should be entered against 'Guardian'. Exact nature and relationship should also be mentioned

Scholastic Attainment Record Form

The Examination system renders the detection of backward cases very difficult. Those who are backward in general or in specific subjects remain so till it is too late

to mend. Maintenance of scholastic attainment record form makes it easier to detect and to reach such pupils. It will also help to :

1. Know pupils of usual ability
2. Divide the classes into smaller groups of similar level of achievement. This will make class instructions more effective
3. Give an impetus to the students in the lower classes and to inspire in them healthy competition, and
4. Help at the time of giving promotions and determining the granting of freeships, scholarships and rewards

Every month after the assessment is over, the record forms should be shown to the students so that they may know what progress they have made during the whole month. The records should be filled in by subject teachers. For each subject, three columns should be provided, one for each of the following :

- (i) Daily work
- (ii) Maps, Notebook work, Charts, etc.
- (iii) Tests : Daily, Weekly and Monthly (if held any).

At the end of every month general consolidated impression about each of the aspects should be given. It would be better if the teacher, instead of depending on his memory, maintains a personal register wherein he makes daily entries. The final assessment should be the average of the above three. The assessment should be made on a five-point scale as mentioned below :

A	B	C	D	E
Good	High	Average	Low	Poor
Average			Average	

Practical Activities

In recent years emphasis in education has been rightly shifted a little towards vocational usefulness. Some practical activities have been incorporated in school curriculum with the ideal of acquainting pupils with crafts and activities which they might put to use after the completion of school life.

Hence the activities should be so conducted and records maintained in such a manner that information collected should corroborate and supplement, where necessary, the findings obtained from aptitude testing. In order to fulfil this objective, it is essential that no restriction should be laid on the number of activities in which a pupil wants to take part. He should be allowed full scope to choose and all facilities should be provided to pursue them.

Observation report should be entered every week under two distinctive heads :

- (i) Efficiency : (E) Which refers to the quality and quantity of work produced by the pupil. Following code will be easy to adopt and also be sufficient for the purpose : Unsatisfactory O Mediocre + Satisfactory.
- (ii) Interest : (I) It is very necessary to assess the interest which a pupil takes in his work, apart from his efficiency. It goes a long way in effecting adjustment to our surroundings. The general mood and vivacity with which he does his work should be put under this head.

A pupil will always reveal himself more 'at work' than 'through his work'. General behaviour of the pupil while he is engaged in work should be observed, and significant remarks should be noted.

Health Records

Mind and body are so closely related to each other that to understand one, study of the other is very essential. Health records, therefore, occupy an important place in any machinery which takes upon itself the duties of 'Guidance' :

- (i) Previous history and medical history of the family (If it is exceptional).
- (ii) Report of medical examination which is held by school authorities from time to time.

Personal Data Sheet

This record form is very valuable. If it is properly and accurately maintained it will be very helpful in managing the student. It aims at giving a glimpse of pupil's personality. For convenience of study, this record may be split up into four areas :

- (1) Physique and Health
- (2) Mental and Scholastic
- (3) Character Traits
- (4) Vocational and other interests.

Future Plans

'Guidance' is the watchword of modern life. Society has become so complex and individual life-span so changing that there is no place for experimentation. If one needs to avoid frustration in later life, he has to plan his future methodically. Vocation, being one of the main responsibilities of later life, needs careful planning right from school stage.

Almost all the information needed for counselling in this direction is scattered in various records discussed so far. It will be, however, easier for reference if all the relevant information is put in one place. Therefore, maintenance of this form is indispensable for counselling services.

Such form should be completed every year. It should be written by the expert and suggestions handed down to proper persons for execution, before new session starts.

Honour Board

The Honour Board is a valuable possession of a school. It is no exaggeration that the Honour Board will decorate school walls better than all sorts of other pictures. It reflects the glory of the school and at the same time gives a sense of fulfilment to pupils who bring honour to their institution. Its importance does not end there. It serves as an incentive to scores of other ambitious pupils who enter that institution.

There is, however, a tendency to restrict the application of the Honour Board in the field of scholastic achievement only. This practice quite naturally lays undue weightage on only one aspect of education and hence inspires only a section of the school population.

Therefore, Honour Boards should be

displayed in prominent places of the school like the main halls, verandahs or the entrance porch, where these can be within sight of every visitor. There is no harm if more copies are maintained and exhibited in different places.

Conclusion

I am conscious of the criticism which readers can level against the suggestions made here and also of doubts which can be raised with regard to their importance and utility. But I am confident that this new development is going to influence education. If not today, the day will soon come when every facility for including cumulative record system in schools will be available.

All those who are holding the reins of education should by then be convinced and be ready to take this step towards better and fuller education. It cannot be denied that this reform will need more funds to equip schools with material and personnel:

—7/150, Baijnath Para,
Raipur (M.P.)

Significance of Parents Teacher Associations

N N PRAHALLADA

Even though Parents-teacher Associations are expected to play an effective role in improving the behaviour of students, in reality in most schools they have become ornamental and non-functional. As a result, several schools are suffering from ticklish student problems.

The traditional system of education did not recognise the reciprocal relationship between Education and Community. As a result the schools existed in isolation from the cross-currents of life. Education was conceived narrowly and in circumscribed terms restricted itself to the precincts of the four walls of the school with teachers hammering out knowledge into the minds of pupils almost capriciously and haphazardly using authoritarian practices and thereby arresting both the individual and social development.

But, in recent years the modern education is giving fillip to the concept of school community relationship. School should impart education in relation to community life. The young ones who are the future members of the social order should be educated in the medium of social spirit. This is possible only when students, teachers and parents interact in a mutual and spontaneous way, maintaining

cordial relations and with each group seeking to benefit from the interaction with the other. Here comes the positive role of Parent-teacher Associations.

In some schools there is no proper initiative from the Headmaster for the parents to take any kind of interest. In some other schools the trend is quite the opposite. In some localities both the school authorities and parents show little interest in the Association.

Many parents visit the school only during the admission time. Once they admit their children, they feel their responsibility is over. It should be noted that schools alone cannot mend the behaviour of students; Parents are equally responsible. Parents should take interest in knowing the progress of their children both in curricular and co-curricular activities. The parents should help their children develop a helpful attitude towards education and support the teachers in sus-

taining this attitude. If the students do not have a favourable attitude towards education to start with, they may not allow the system to function smoothly. That will only result in poor academic achievement besides poor personal and social adjustments. And it is these poorly adjusted students who become grumbler and trouble makers. In this direction parents have a special role to play to set right their wards behaviour in and out of the school campus.

Parents-teacher Associations should not be viewed narrowly. It is not just a meeting of parents and teachers but it involves something more. Frequent visits of the parents to the institution and their involvement in some of its activities will certainly have a beneficial impact on the students. Parents should realise their responsibility towards their children and should evince genuine interest in their education and well being.

Unfortunately in most schools Parents-teacher Association is restricted to collecting funds and seldom they meet to discuss problems of students.

Parent-teacher Association should endeavour to arouse the consciousness of all concerned about the problems and challenges in school education. It should launch a

parents-teacher movement with a view to creating a pressure of public opinion in educational matters. Teacher's role in forming the attitudes and abilities of future generations is fundamental. Unfortunately, this realisation is not widespread particularly among teachers. Parents also have to be told about the expectations from the system of education and the context in which it operates. Parents-teacher Associations should operate at the level of the minds of teachers, parents and educational administrators. It should endeavour to encourage parents to express themselves. The larger the participation of parents the greater will be the cooperation that could be obtained.

Lastly, by organising parents teachers meeting, several misconceptions and wrong notions about students behaviour can be dispelled. Many flimsy issues, if unattended at the appropriate time, are likely to be blown up to enormous proportions since students are prone to be misguided. Such issues can be discussed within the Parents-teachers Association inviting students to participate and express their opinion.

*Lecturer in Education
Regional College of Education (NCERT)
Mysore-570006*

Testing Reading Comprehension in English

MAMTA AGRAWAL

The development of reading ability is the primary aim of English language teaching programme in schools. Since the mental ability involved in reading is 'Comprehension', the teaching learning activities in the classroom should be geared to the development of reading comprehension ability in the students and it is the teachers' task to test it through suitable devices.

According to the National Curriculum for Primary and Secondary Education—A Framework (NCERT; Dec. 1985), English is to be introduced as a second language at the Upper Primary Stage i. e. at class VI level and the main objective of teaching English is to enable the children to obtain at a later stage, knowledge not available in their mother tongue. English is, therefore, to be taught as a 'library language'.

What is Reading Comprehension

Comprehension in language means the ability to know what is being communicated. Reading comprehension is the ability to attach meaning to the written symbols.

Broadly speaking, comprehension mainly consists of the ability to grasp the meaning

of words and phrases in the context, to identify the main statements, facts and ideas in a communication; to perceive relationships and sequences of ideas; to shift relevant ideas from irrelevant once; to interpret implied meaning of a passage; to draw conclusions, make inferences and read "between the lines".

Once the teacher knows what are the abilities to be tested in reading comprehension, he has to find out the most suitable technique for testing it.

How to Test Reading Comprehension

Generally while testing, the teacher gives questions on lesson. These questions are those which have already been discussed in the class. As a result the answers that the students produce are the memorised ans-

wers. Such questions do not test student's ability of reading comprehension but only test their power of recall.

The best way to test reading comprehension is to give an unseen passage to the students and ask questions on it. In this way the students will be able to demonstrate their ability of reading comprehension in the testing situation. However, the passage should be chosen according to the level of the students.

Another point to be mentioned here is that many a time such questions are asked which require the students to write long answers. Some students who are not efficient in writing are not able to answer those questions even though they know the answers. Since, comprehension is a lower mental ability as compared to expression, it is better if comprehension questions are prepared in such a way that they require no writing or very little writing. Objective type questions, very short answer and short answer questions can be used for testing comprehension at the primary level.

Below are given some question-types which can be asked on unseen passages for testing reading comprehension at the primary level :

1. *True/false items* . True/false items are very good for testing reading comprehension of the beginners. These can be easily constructed and the children can also answer them without much difficulty as no writing ability is involved in them. Below is an example of true/false questions .

The gecko is a little lizard. Geckos live in warm places all over the world. They eat insects. Most of them come out only at night.

Like other lizards they have sticky feet. They can walk on windows and upside down on the ceiling.

Read the following statements and say whether they are true or false. Put (✓) if the statement is true and (X) if it is false

1. A gecko is a bird ()
2. Geckos are found everywhere in the world. ()
3. Geckos like to eat insects ()
4. Geckos like to catch insects ()
5. You can see geckos during the day ()
6. A gecko has sticky feet. ()
7. Geckos can walk up the walls ()

2 *Multiple Choice items* After a comprehension passage has been selected, a number of multiple choice questions can be set on it testing not only the comprehension of the content matter but also of the words and structures. These questions have four answers, of which only one is correct. An example is given below. The specific ability tested by each question is also mentioned.

Read the following passage and answer the question given after it

Some plants eat flies. The pitcher plant is a plant that eats flies. But why is it called a 'pitcher plant'? It is called that because it resembles a pitcher. A pitcher is like a jug for keeping water in. The leaves of the pitcher plant end in a shape just like a small pitcher. They have lids. When a fly goes into the pitcher, the lid closes. The plant begins to 'eat' the fly.

1. The pitcher plant.....
 - A. flies.
 - B. eats flies
 - C. is eaten by flies
 - D. drinks water
- (grasping the idea)
2. The pitcher plant has that name because....
 - A. it eats flies
 - B. it holds water.
 - C. it is a pitcher.
 - D. its leaves end in a shape like the jug
- (Identifying relationship)
3. When a fly goes into pitcher ...
 - A. it is killed immediately.

- B it has to be careful
 C it cannot fly away.
 D it starts eating the plant
- (interpreting)
4. The word *resembles* here means .
 A gets collected in
 B looks same as
 C eats up.
 D closes again
- (grasping the meaning)
- 5 The whole passage is about :
 A flies
 B pitcher
 C eating flies
 D pitcher plant

(getting at the central idea)

3. Very Short Answer and Short Answer Items Very short answer and short answer questions are the questions where the student has to write his answers in one word, one phrase or one or two sentences. This requires not only the comprehension of the passage but also the ability of written expression. Such questions should be given only when the students have acquired sufficient proficiency in expressing themselves in writing.

While preparing short answer and very short answer questions care should be taken to write them in such a way that the student is not able to lift the answer from the passage as such, but, has to provide the answer in his own words.

For Example :

'Cave people lived long, long ago. They needed clothes to keep them warm. But they did not know how to make cloth. So they used the skins of animals that they killed when they went hunting.'

Why did cave people need clothes ?

This question can be answered by the students even without comprehending the passage. All they need to do is to tally the word 'need' in the question with the same word in the passage.

Some short answer questions that can be asked on this passage are :

- 1 Why didn't the cave people have clothes ?
- 2 How did the cave men keep warm ?
3. How did they get the animal skins ?

Some very short answer question in the passage are given below .

1. Complete the following sentences :
 (a) Cave people used _____ for clothes.
 (b) When they went hunting, they killed _____.
2. Answer in one or two words :
 (a) Where did cave people live ?
 (b) Did they have clothes ?

A word of caution is necessary at the end. While preparing comprehension tests the teachers should select the passage keeping in view the student's knowledge of vocabulary and structures and prepare questions in a simple language that is easily comprehensible to the students. While making the test, students should not be penalized for spelling mistakes, grammatical mistakes etc because the main objective of comprehension tests is to test the ability of comprehension and not the ability of writing. If the answer makes sense, marks should be given.

*Lecturer, Department of Measurement,
 Evaluation, Survey & Data Processing,
 NCERT, New Delhi-110016*

Broken Bangles and Creativity

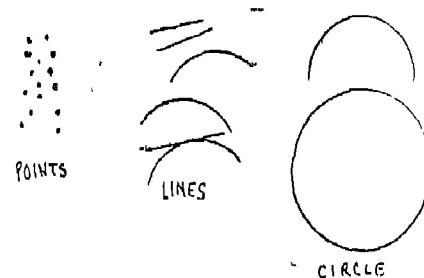
HEM RAJ GARG

Productive and creative activity not only sharpens intellect of the child for accuracy, originality of reasoning and keen observation but also creates enthusiasm for learning proficiency. Creative urge helps children make more and more attractive models of various innovative experiments and learning situations, particularly via exploiting the so called waste material like bangle pieces etc for educational purposes. This first person account comes from a curious and well attentive School Headmaster.

To increase one's assets is a natural child instinct Children collect pieces of broken bangles, bottle heads, pebbles etc. and exploit this material for playway activities. I would like to describe an unprecedented play based on such material which I had the privilege to notice.

I saw a child having handful of broken bangles. I tried the whole day to arrange these pieces to give them some shape and form but could not do so. In the evening I observed that a child had designed a model of a dancing girl by joining the pieces of bangles while playing with friends. Though the design looked rough and needing revision, a cursory glance at the model did show his sense of originality and his creative power. I took this observation seriously and gained an insight for designing different

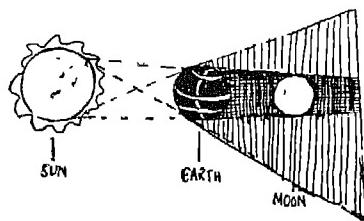
educational models out of the otherwise waste material.



Model-I forms the base for all the educational models designed out of the otherwise waste material.

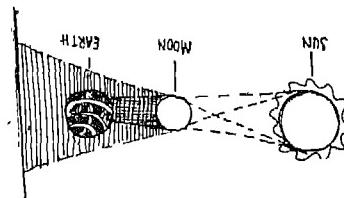
Different types of broken, coloured shining pieces of bangles, discarded Sitaras obtained from used sarees and small glass pipes were collected. A card board (25×15 cm size) was taken to form the base. A coloured chart paper was pasted on the

card board. Then small pieces were pasted with quick fix so as to represent points, lines—straight and curved,—liquid layers, circles etc. (As shown in Model—I). These formed the base for all models. The method of designing all this was explained in an adjoining primary school. Then diagrams representing a circle, triangle, rectangle, solar and lunar eclipses, digestive system, boundary of map of India and so on were explained to the children. The students were asked to prepare these models from bangles as explained above in summer vacation as a home task. A small exhibition of the above models was arranged within the school. Shining alphabets designed from pearl like coloured pieces attracted children mostly. The selected models were displayed



Model-II fetched first prize in the exhibition, creates scientific interests among the students.

in the Sub-Divisional and District Science Exhibitions. Solar and Lunar Eclipse models (as shown in Model-II) fetched first prize in the District level Exhibition.



Model-III : A scientific approach with the help of broken bangles.

Individual work of above nature conclusively helped children in understanding concepts and fundamentals more minutely and meaningfully. The playway activity spontaneously helps to remove strange type of apathy for education. Playing with such type of waste pieces to design in-expensive models with their delicate hands in leisure time not only removed indiscipline but also helped in minimizing unmitigated boredom of the children.

*Headmaster, Govt. Middle School,
Basti Bazirgar, Dhuri
Distt. Sangrur, Punjab*

How to Operate World Clock

C. DURGA PRASADA RAO

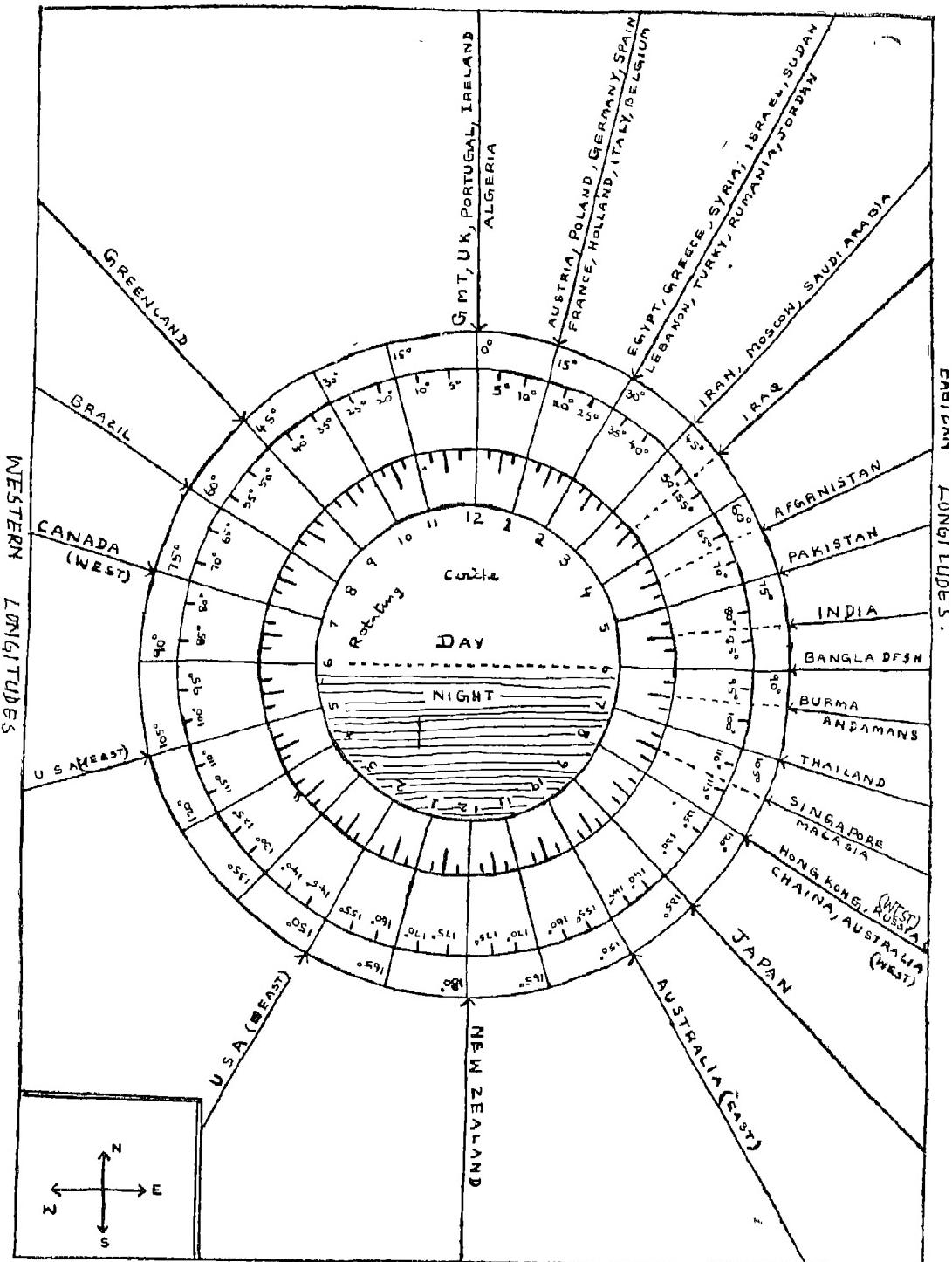
Headmaster, PSUP School, Patamata Lanka, Vijayawada

This simple and easy operating instrument is very useful both from educational, creativity and entertainment points of view not only to the geography students at high school level but also to all as it evokes general awareness so as to gain specific knowledge regarding the timings of different countries. Its importance at the airports is still larger.

It is a simple and easy operating instrument to know the timings of various countries at a glance. There are two circles here, having the same centre. The big circle shows the Eastern and the Western longitudes on its each side consisting of 180° . The small circle shows the 24 hours of a day. It is a separated one, based on the centre of the big circle, freely rotating on the big circle. Every 15° makes and shows an hour in the small circle. The standard longitudes of various countries are shown with an arrow mark on the big circle. As we all know the longitude of a country it informs us the standard time of a country. For example the standard longitude of India is $82\frac{1}{2}^{\circ}$ Eastern longitude, so that itself shows our time and it is advanced $5\frac{1}{2}$ hours to time of Great Britain. In that way the standard longitudes of important countries mentioned on the big circle.

Now if you want to know the Standard time of Japan (135° Eastern longitude) or Canada, you can easily know it by seeing the world clock. Moreover if you want to know the time of a particular country at particular time, you can easily find out by looking at it.

For Example : In India it is 9.00 A.M. If you want to know the time of U.K. corresponding to it, turn the small wheel up to 9.00 A.M. to the Indian Standard Longitude, then you can know the time of Canada exactly at present. Not only Canada but you can know the different timing of various countries at that moment (at 9.00 A.M.) without any difficulty and at a glance. It is very useful at the Airports. The preparation of the aid is easy and less expensive and it is more useful while in teaching "Time Zones" in Geography at High School level.



World Clock

OCTOBER 1986

Formation of Mathematical Signs by Fingers

BENIMADHAB MUKHERJI

A mathematical concept can be expressed precisely and concisely by using signs or symbols. Otherwise, it takes longer time and more space if we try to express it in words. For example, instead of asking 'add 3 to 4, subtract 4 from 5, and how many times can 2 be taken away from 6', we need only write $4+3$, $5-4$ and $6\div 2$ respectively. So, each sign indicates a specific action. In short a symbol is used before a number to indicate the action to be taken about this number. So, it is essential that a child gets used to mathematical signs or symbols for logical and precise understanding.

Children may know how to form letters and numbers by fingers. Similar method may be followed by them to form various mathematical signs also. As this is a playway method, it will not tax their brain. They will be able to pick it up easily. Besides formation of signs, their meanings have also been explained in lucid form. To make it interesting, meanings of these signs have been explained with the help of similes. It is expected that children will be able to understand these signs easily. As no advance planning is required, children will enjoy making these signs themselves even at odd time and place. Their active participation will make learning effective. Thus, a clear concept of these signs will be formed at an early age. This will be of

immense help to them later when they take up the study of mathematics in their schools.

How to Form Signs

1 Plus (+) — Means addition, more. If somebody gives us money and the same is added to the amount with us, our total amount becomes more. So, we become happy. This happiness is expressed by two straight lines crossing in the middle at right angles.

Make a cross of the fore-fingers in the middle at right angles (it will look

like capital 'L' on upper right side of the cross and on other three sides 'L' in

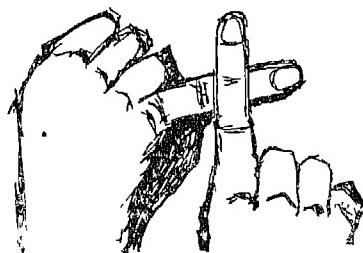


Fig. 1 (a)

different poses) to indicate the sign of plus (+). (Vide illustration No. 1 (a).

- 2 Minus (-)—Means take away, less
If a part of money is taken away from the amount with us, our original amount becomes less. This is expressed by one short horizontal straight line.

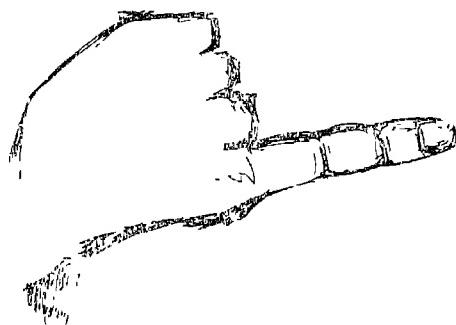


Fig. 2 (a)

Stretch the fore-finger of the left hand horizontally to indicate the sign of minus (-). It is easy to recognise the two signs—Plus (+) and Minus (-). (Vide illustration No. 2(a))

Stretch the left hand fore-finger horizontally and place the right hand fore-finger vertically crossing at the middle at right angles to form plus (+) sign If the right hand fore-finger is removed, only the left hand fore-finger remains stretched horizontally to form minus (-) sign So, this means that *minus* denotes less (*only one line*) and *plus* denotes more (*two lines*).

3 Multiplication (x)—

Means 'times' If we get money in terms of times (i.e., big amount), we become extremely happy This extreme happiness is expressed by the movement of our head towards left and right

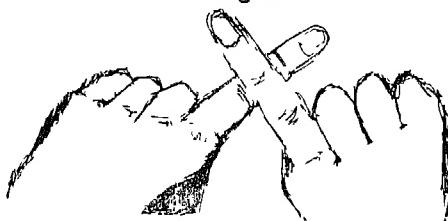


Fig. 3 (a)

A cross should be made by placing one fore-finger at the middle of the other (at any angle other than right angle, i.e., it will look like slanting capital 'L' on upper right side of the cross and on other three sides standing 'L' in different poses) to

indicate the sign of multiplication (Vide illustration No. 3(a))

4 Division (—) —Means "share". If some persons share our money, our original amount decreases considerably. So, we feel unhappy. This feeling is expressed through our eyes on both sides of our nose. The nose and eyes may be reflected by the minus and two dots—one above it and the other below.



Fig. 4 (a)

Put the tip of the fore and middle fingers of the right hand between the middle fore-finger of left hand stretched horizontally to indicate the sign of division. (Vide illustration No 4(a)).

- In brief . . .
- (i) *Plus or addition means more while Multiplication means much more*
 - (ii) A straight cross is a sign of plus (+) whereas a slanting cross is a sign of Multiplication (\times).

(iii) *Minus or subtraction means less while Division means much less*

(iv) A small horizontal line is a sign of minus (—) whereas a minus sign with two dots (one above it and the other below) is a sign of division (—)

5 = — Means 'is equal to'
Stretch two fingers (fore and middle) of any hand

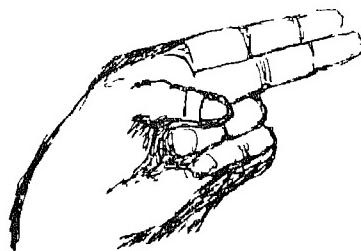


Fig. 5 (a)

to look like two close parallel lines (Vide illustration No 5(a)).

6. < — Means 'less than'.
Stretch fore and middle

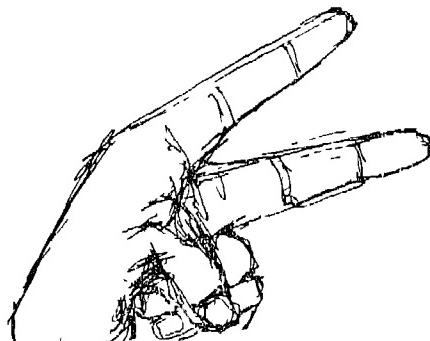


Fig. 6 (a)

fingers of the left hand making an angle of 45° or

slightly more. (Vide illustration No 6(a)).

7. > — Means 'Greater than'. Stretch fore and middle fingers of the right hand making an angle of 45° or

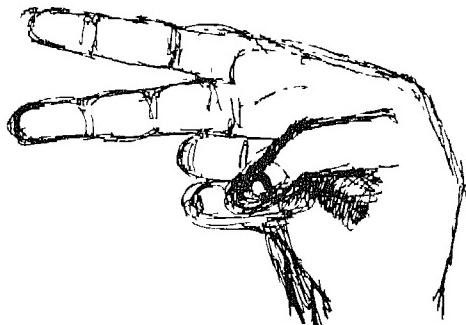


Fig 7 (a)
slightly more (Vide illustration No 7(a)).

Note : Since the *left hand* is weaker of the two, the formation will indicate *less than*, whereas that of the *right hand* will indicate '*greater*

than' as this hand is stronger. This may be considered as a useful guide.

Children may like to know how to ascertain that the right hand is stronger than the left hand. For this a simple method is described here. Take two small stones of equal weight. Throw one stone by the right hand and other one by the left hand. You will see that the one thrown by right hand will travel greater distance than the other. This indicates that the right hand can throw with a stronger force than the other. So, the right hand is stronger and the left hand is weaker.

—B-240, Chittranjan Park,
New Delhi-110019

JOURNALS

Published by the

NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

INDIAN EDUCATIONAL REVIEW

Quarterly : Annual subscription Rs. 26.00

JOURNAL OF INDIAN EDUCATION

Bi-monthly : Annual subscription Rs. 16.00

THE PRIMARY TEACHER

Quarterly : Annual subscription Rs. 6.00

SCHOOL SCIENCE

Quarterly : Annual subscription Rs. 12.00

THE PRIMARY SHIKSHAK (HINDI)

Quarterly : Annual subscription Rs. 6.00

BHARTIYA ADHUNIK SHIKSHA (HINDI)

Quarterly : Annual subscription Rs. 12.00

Editorial Contact

GENERAL EDITOR

Journals Cell, NCERT

New Delhi 110016

Business Contact

CHIEF BUSINESS MANAGER

Sales Wing, NCERT

New Delhi 110016

Regd. No. 28935/76



राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
NATIONAL COUNCIL OF EDUCATIONAL
RESEARCH AND TRAINING